USER'S MANUAL

AirQWeb

Turnkey Instruments Ltd.

October, 2014

User's Manual
Authorization Memorandum

I have carefully assessed the User's Manual for AirQWeb. This document has been completed in accordance with the requirements of the Turnkey Instruments Development Methodology.

MANAGEMENT CERTIFICATION - Please check the appropriate statement.

_____ The document is accepted.

_____ The document is accepted pending the changes noted.

_____ The document is not accepted.

We fully accept the changes as needed improvements and authorize initiation of work to proceed. Based on our authority and judgment, the continued operation of this system is authorized.

_____ _____

Mike Leck DATE
Managing Director

_____ _____

Dave Brooks DATE
General Manager

_____ _____

Alan Taylor DATE
Director

USER'S MANUAL

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1.0 GENERAL INFORMATION

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1.1 AirQWeb Overview

AirQWeb is a web application that allows you to analyze the results from the environment sensors that collect data on air quality information (TSP, PM10, PM2.5 and PM1) along with any external sensors such as pollutant gases and noise levels. AirQWeb enables you to generate charts such as Table charts, Line charts, Area charts, Rose charts, Average Gauges and also charts with sliders to analyze the data for a specific time span. You can also control the instruments using this application such as start/stop sampling, change instrument configuration etc. You can import/export data and charts and generate reports as well using this web application.

When you buy a dust monitoring instrument from Turnkey Instruments Ltd. your account will be created and your instrument will be added to your account. You will be given a user name and password to access your instrument(s) over the web using AirQWeb.

AirQWeb has been developed with multiple background services such as service that uploads the data from the instruments, service for online sampling that collects data from the instruments every minute, service to generate email & SMS alerts in case of an exceedence, etc.

1.2 Authorized Use Permission

Usage of this software is limited to its owner via the terms of its development. AirQWeb is wholly owned by Turnkey Instruments Ltd. and may not be updated or amended without their express consent.

1.3 Points of Contact

1.3.1 Information/Help Desk

For additional information and/or support Turnkey Instruments Ltd. can be contacted via email techsupport@turnkey-instruments.com or phone (+44) 1606 812 666.

1.4 Organization of the Manual

Section 2 describes the system architecture of the application including the data flow and the user access levels. Section 3 explains the log in/out operations and the main panel of the application. Section 4 gives details on how to use the application with the help of screenshots.

2.0 SYSTEM SUMMARY

2.0 SYSTEM SUMMARY

AirQWeb is a web application that allows you to analyze the data from your instruments on the web. AirQWeb automatically uploads the data from the instruments and saves it in the database and enables you to generate charts such as Table charts, Line charts, Area charts, Polar charts, Gauges and also charts with sliders to analyze the data for a specific time span.

AirQWeb enables you to control your instruments on the web from anywhere in the world. You can start/stop online and offline sampling, change the configuration of the instruments and upload the data manually (although the application automatically uploads the data).

AirQWeb lets you import the data in a particular format, you can export the data from AirQWeb in different formats such as excel, PDF, CSV and with charts as images. You can also generate reports with the data and the chart giving the exceedence limit i.e. any value higher or in between the limits will be highlighted in the report.

AirQWeb also facilitates you to generate 3D graphs that depicts the **time of day vs. value** for a selected **date range**. You can also compare the data from two instruments and generate the graphs to analyze the comparison.

AirQWeb also allows you to publish the data from any of your instruments if you want everyone to visualize it. Your instrument will be displayed in the map on the main page of the website. Note: only the data you publish is visible on the main map.

2.1 System Architecture

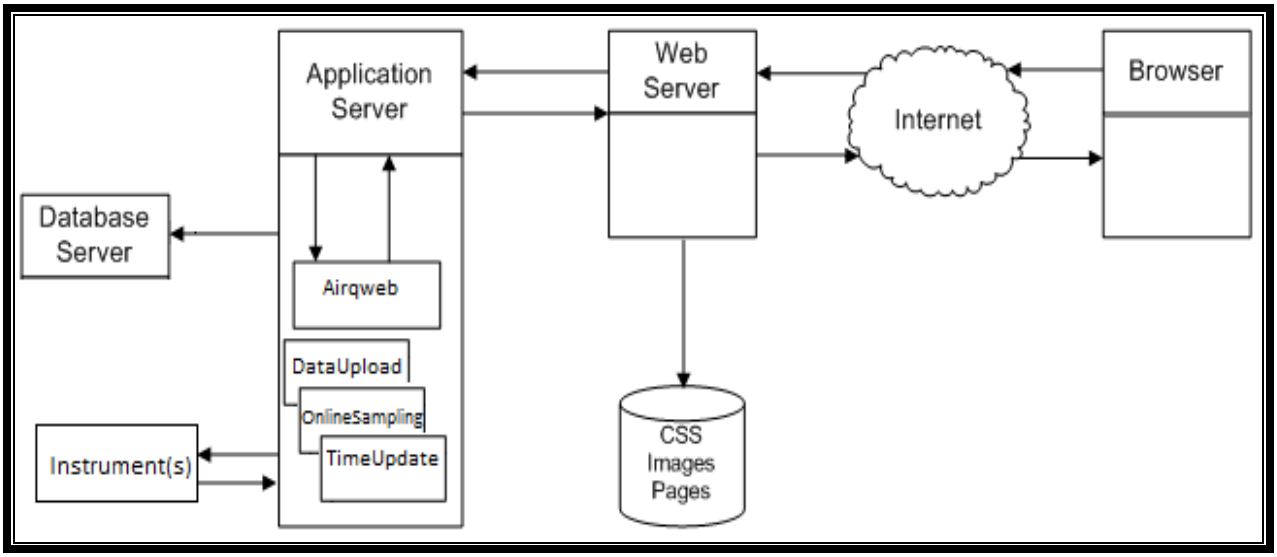


Figure 2.1

2.2 Data Flows

The above diagram shows how AirQWeb fits within standard enterprise web application architecture. The data flow in the architecture is as follows:

1. The browser sends a request for a resource of some kind to the web server.
2. The web server decides what to do with the request.
    a. Static resources such as images, CSS and static web pages are read from disk and returned directly to the browser.
    b. Requests for dynamic resources (such as a customer login) are forwarded to the application server.
3. The application server passes the request to the web application.
4. The web application constructs a response using data from the database server when necessary.
5. The response is passed back up the chain to the browser.
6. The browser displays the response.

2.3 User Access Levels

Users of the application can be categorized in four access levels, a **general user**, a **customer, viewer only customer** and a **manager**. A **general user** can only visualize the data that has been published by the customers. General users can also export the data and the graphs. **Customers** are given user name and password to access their accounts and control their instruments. **Viewer Only** customer role is a child of a customer role, they are given a username and password to only visualize the data from a customer's instruments but they cannot perform any instrument operations like start/stop sampling etc. **Managers** can add/update/delete users and instruments.

2.4 Contingencies and Alternate Modes of Operation

There are multiple applications running on the background, in case the application server goes down the background applications will stop running. In that case online sampling feature will not be working and no data will be uploaded to the database hence no alerts will be sent. But the instruments will keep on storing the data in the internal memory and this data will be uploaded automatically after the connection is reestablished. After the server is up, online sampling will start normally.

3.0 GETTING STARTED

3.0 GETTING STARTED

3.1 Logging On

When you buy a dust monitoring instrument from Turnkey Instruments Ltd. your account will be created and your instrument(s) will be added to your account. You will be given a user name and password to access your instrument(s) over the web using AirQWeb. To use the application go to https://www.airqweb.co.uk and click on 'Log in here' button at the top right corner on the main page as shown in figure 3.1.

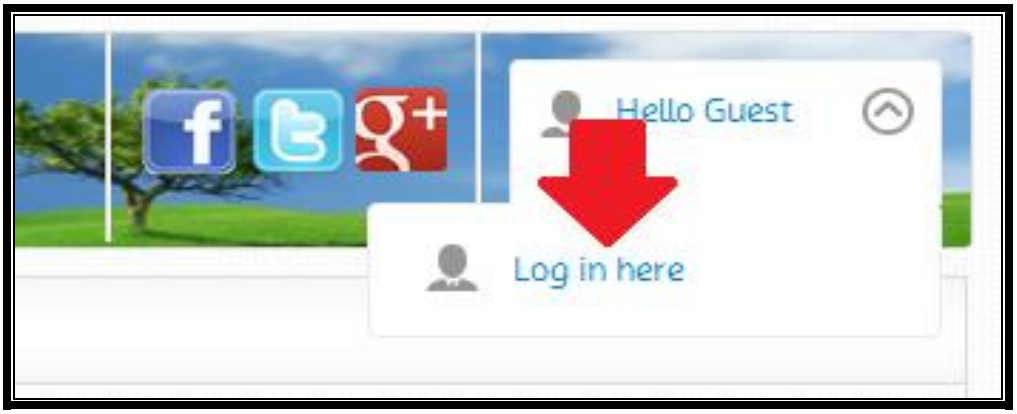


Figure 3.1

Enter the user name and password you have been provided with.

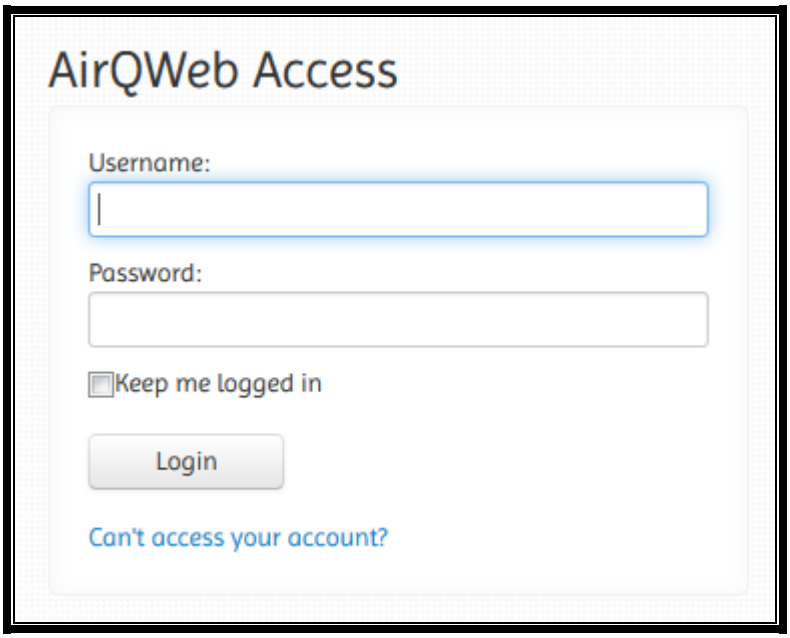


Figure 3.2

A successful login will take you to the main panel which should look like the following figure.

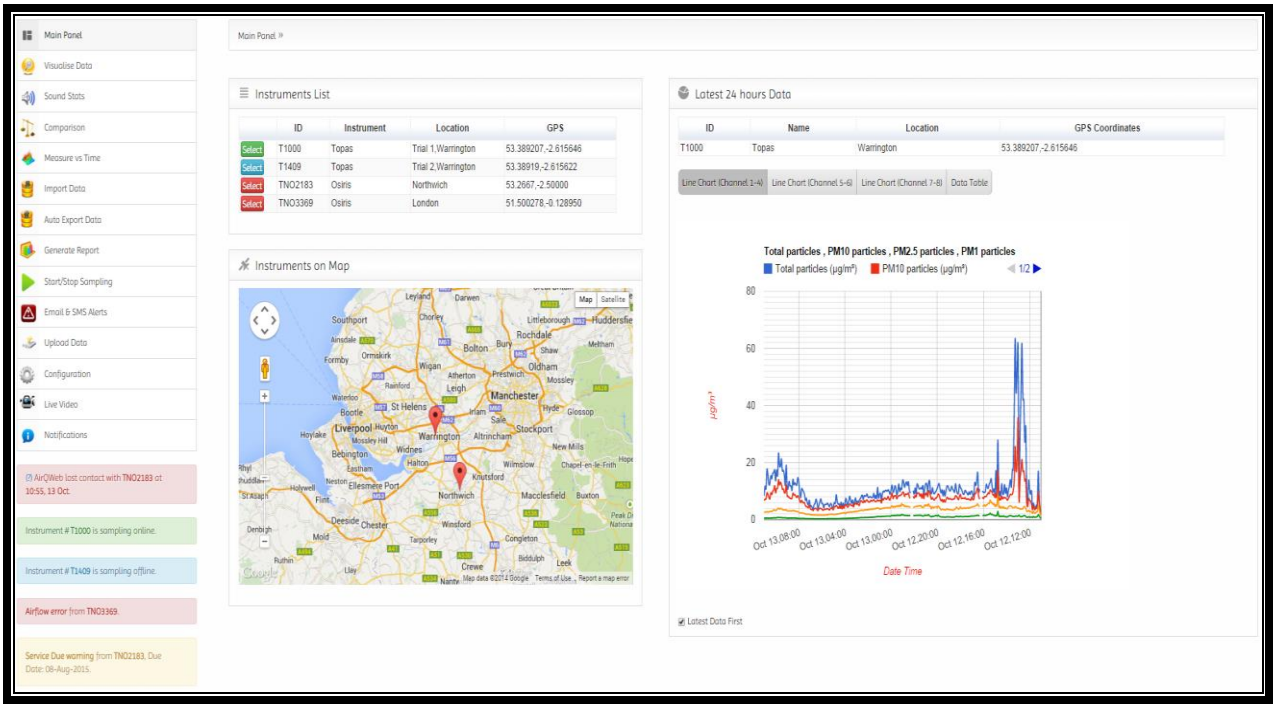


Figure 3.3

The '**Main Panel**' shows the latest available data for the selected instrument in a data table and line charts. All the registered instruments are shown in the list as well as on the map according to the GPS coordinates. The instruments list shows which instruments are sampling online or offline and which have a warning or error flag on. The green button means the instrument is sampling online, a blue button shows that the instrument is sampling offline, a yellow button shows a warning for the instrument and the red button shows either the instrument is out of contact or an error has occurred for the instrument. On the bottom left corner of the page, the messages show the details of loss of contact, online/offline instruments, errors, warnings and the calibration due dates.

3.2 System Menu

3.2.1 Left Menu

There is a menu list on the left hand side on every page as shown in figure 3.4

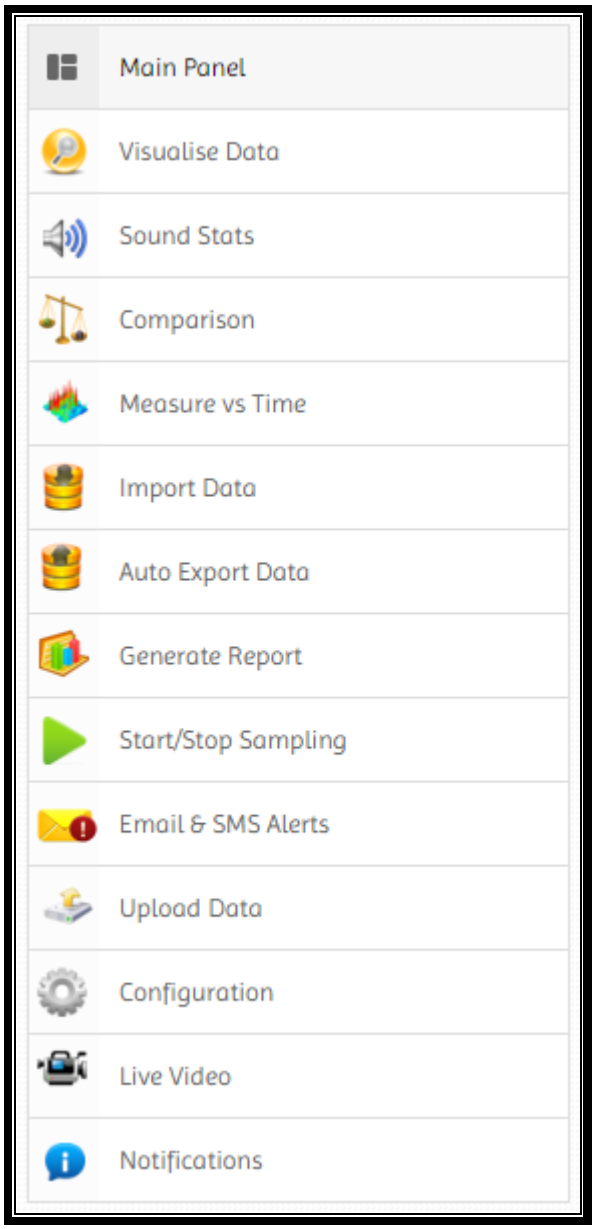


Figure 3.4

This menu contains all the options available in AirQWeb to control your instruments, visualize data from the instruments, configure alerts, watch live video, generate reports, etc. Detailed instructions on how to use these options are covered in section 4.

3.2.2 Profile

This section covers the profiling options of the user and the instruments i.e. **Update Profile** and **Update Instrument** as highlighted in figure 3.5

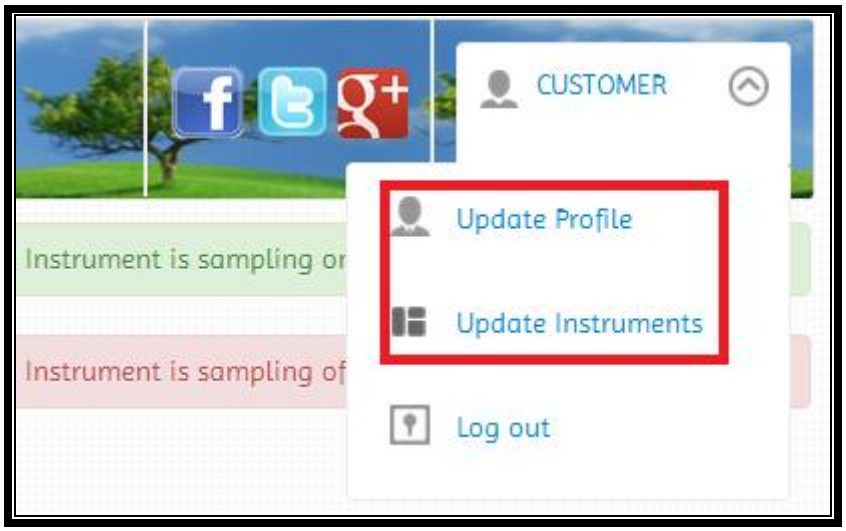


Figure 3.5

You can update your details such as your password, email address, security question, etc. using the **Update Profile** option. **Update Instruments** option allows you to update the details of the instruments such as location, GPS Coordinates, IP address, etc. Detailed instructions on how to use these options are covered in section 4.14 and 4.15.

3.3 Logout System

You can click **Log out** link in the profile menu at the top right corner of the screen to logout from your account as shown in figure 3.5. This will take you to the main page of the website or you can simply close the browser tab which will end the session.

4.0 USING AIRQWEB

4.0 USING AIRQWEB

4.1 Visualize Data

When you click on Visualize Data option in the left menu as shown in figure 4.1

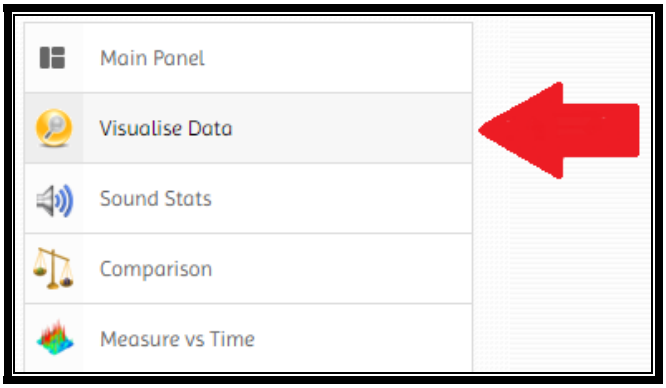


Figure 4.1

The application shows the list of instruments registered on your name.

4.1.1 Instrument Selection

The instruments are shown in a list as well as on the map. You can select your instrument from either as shown in figure 4.2.

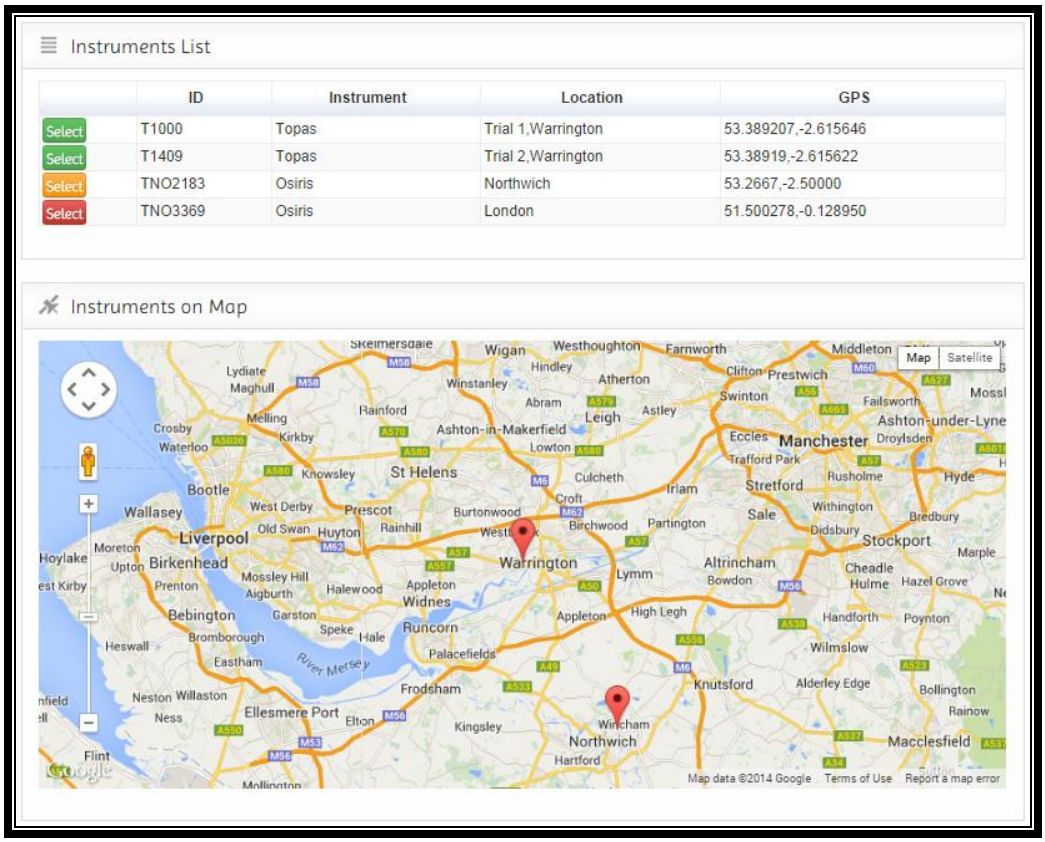


Figure 4.2

When you click a pinhead on the map, it opens the info-window which shows the details of the instrument and you can select the instrument from the info window by clicking on the select button. Instruments are shown on the map using GPS coordinates you set, if you do not set the GPS coordinates manually, the application uses the default GPS coordinates for the selected city. After you have selected the instrument, the application asks you to select date and time for which you want to visualize the data.

4.1.2 Select Date/Time

This page lets you to select the dates (to and from) to search the data for the selected instrument from the database. Dates can be selected from the calendar and the time can be selected from the drop down list as show in figure 4.3

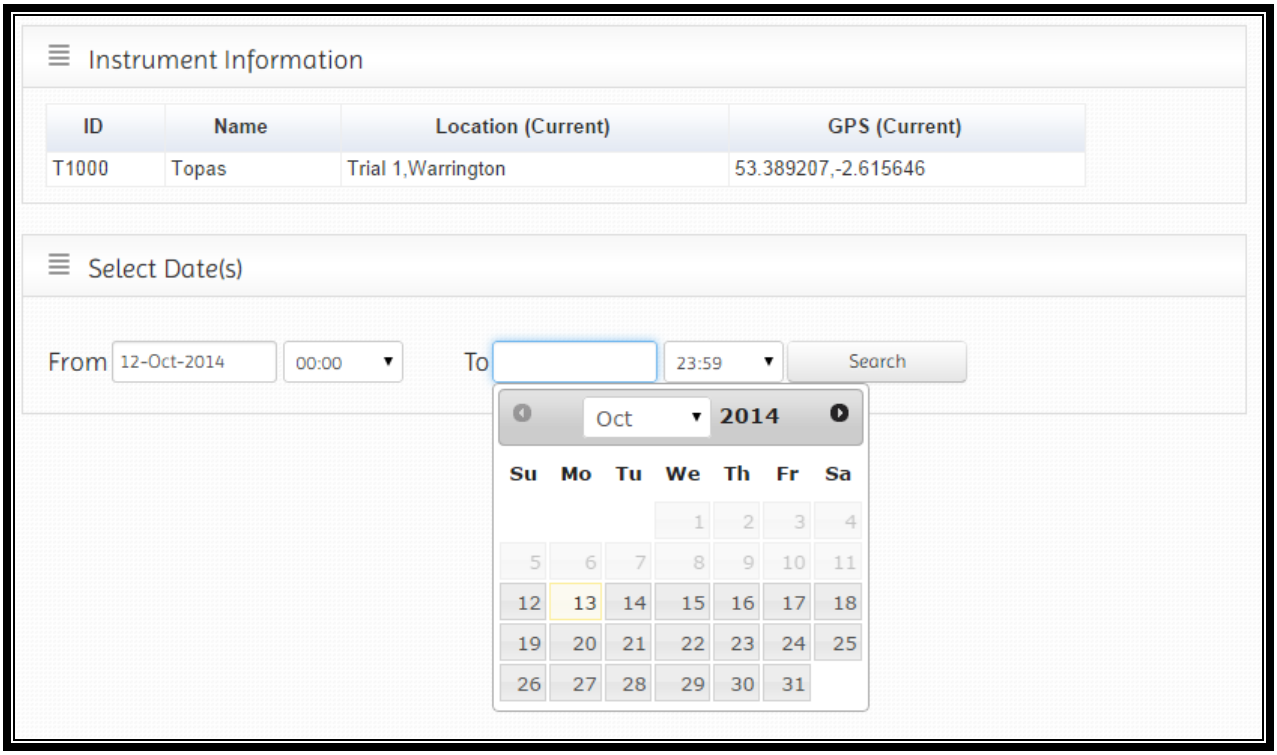


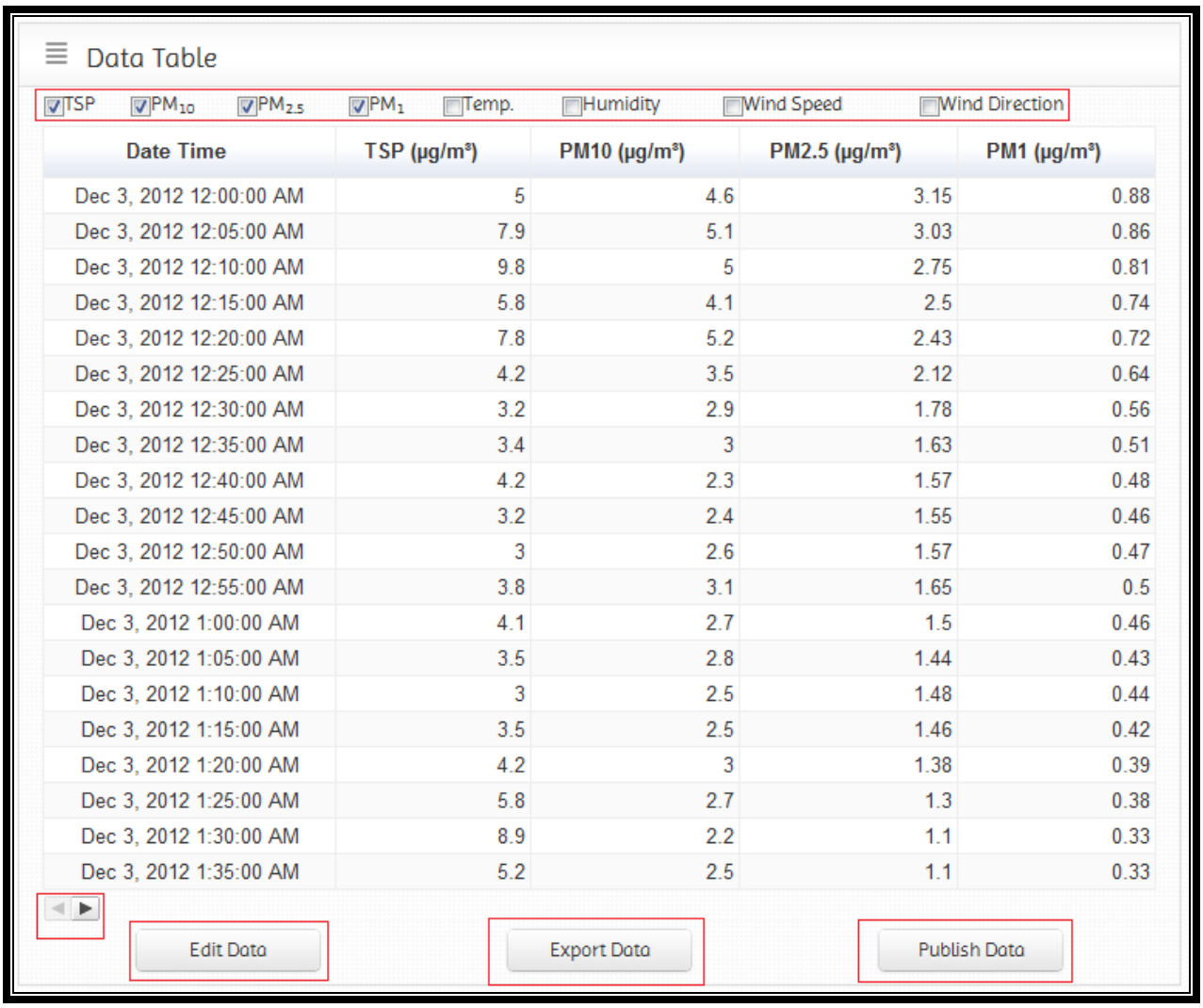
Figure 4.3

After you have selected the date(s) click the *Search* button. This will take you to the data visualization page where you can analyze the data for the selected date(s) in a data table and graphs as shown in figure 4.4 - 4.11

The page shows six tabs named as **Data** on the left hand side and other 5 tabs on the right hand side i.e. **Line chart**, **Area Chart**, **Chart with slider**, **Average Values** and **Polar Chart.**

4.1.3 Data

Under the **Data** section you will have a table containing the data and 8 check boxes (highlighted in the figure 4.4) for the channels to plot the charts. You can select any number of channels you want to display, just check/uncheck the channel name and the charts will be updated automatically. Data table shows 50 rows per page, the table includes page-forward and page-back buttons on the bottom left to the table (highlighted in the figure 4.4). Clicking on these buttons will perform the paging operation and change the displayed page. You can also sort the table in ascending or descending orders by any column. Just click the title of the column you want to sort. Clicking once will sort the table in ascending order, clicking twice will sort in descending order. Under the data table you have 3 buttons named as *Edit Data*, *Export Data* and *Publish Data* (highlighted in the figure 4.4). *Export Data* will generate an excel file for the selected data which you can download to your computer. *Publish Data* option will copy the data into public database which will be shown in the map on the main page. *Edit Data* option is discussed in section 4.1.9.



Date Time	TSP (µg/m³)	PM10 (µg/m³)	PM2.5 (µg/m³)	PM1 (µg/m³)
Dec 3, 2012 12:00:00 AM	5	4.6	3.15	0.88
Dec 3, 2012 12:05:00 AM	7.9	5.1	3.03	0.86
Dec 3, 2012 12:10:00 AM	9.8	5	2.75	0.81
Dec 3, 2012 12:15:00 AM	5.8	4.1	2.5	0.74
Dec 3, 2012 12:20:00 AM	7.8	5.2	2.43	0.72
Dec 3, 2012 12:25:00 AM	4.2	3.5	2.12	0.64
Dec 3, 2012 12:30:00 AM	3.2	2.9	1.78	0.56
Dec 3, 2012 12:35:00 AM	3.4	3	1.63	0.51
Dec 3, 2012 12:40:00 AM	4.2	2.3	1.57	0.48
Dec 3, 2012 12:45:00 AM	3.2	2.4	1.55	0.46
Dec 3, 2012 12:50:00 AM	3	2.6	1.57	0.47
Dec 3, 2012 12:55:00 AM	3.8	3.1	1.65	0.5
Dec 3, 2012 1:00:00 AM	4.1	2.7	1.5	0.46
Dec 3, 2012 1:05:00 AM	3.5	2.8	1.44	0.43
Dec 3, 2012 1:10:00 AM	3	2.5	1.48	0.44
Dec 3, 2012 1:15:00 AM	3.5	2.5	1.46	0.42
Dec 3, 2012 1:20:00 AM	4.2	3	1.38	0.39
Dec 3, 2012 1:25:00 AM	5.8	2.7	1.3	0.38
Dec 3, 2012 1:30:00 AM	8.9	2.2	1.1	0.33
Dec 3, 2012 1:35:00 AM	5.2	2.5	1.1	0.33

Figure 4.4

4.1.4 Line Chart

The **Line Chart** tab shows line chart(s) for the selected channels. As the units of the measures are different, the application shows some values in separate charts. Dust particle measures (i.e. TSP, PM10, PM2.5 and PM1) are displayed in a separate 'line chart'. Temperature and Humidity values are displayed in a separate chart and Wind Speed and Wind Directions are displayed in another chart as shown in figure 4.5 and figure 4.6.

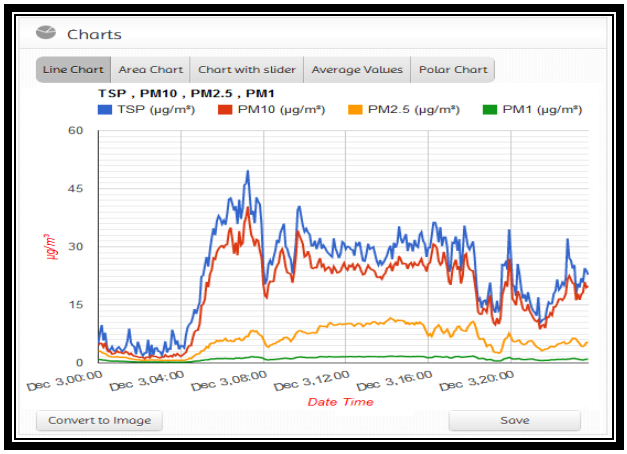


Figure 4.5

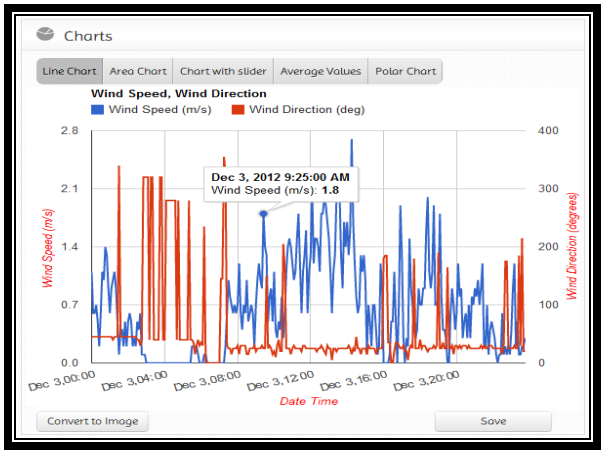


Figure 4.6

Figure 4.5 shows the line chart for dust particle measures and figure 4.6 shows Wind speed on left hand vertical axis and Wind Direction on the right hand vertical axis. The values are plot against date/Time on the horizontal axis. Since these charts are dynamic so you can see the values at any point on mouse hover. Color of each channel is shown in the legend on the chart; you can also highlight one channel by clicking the legend. You can save any chart as an image by clicking *Convert to Image* button.

4.1.5 Area Chart

Area chart tab is almost same as Line chart tab except for the type of the chart. It displays the area charts as shown in figure 4.7 and figure 4.8.

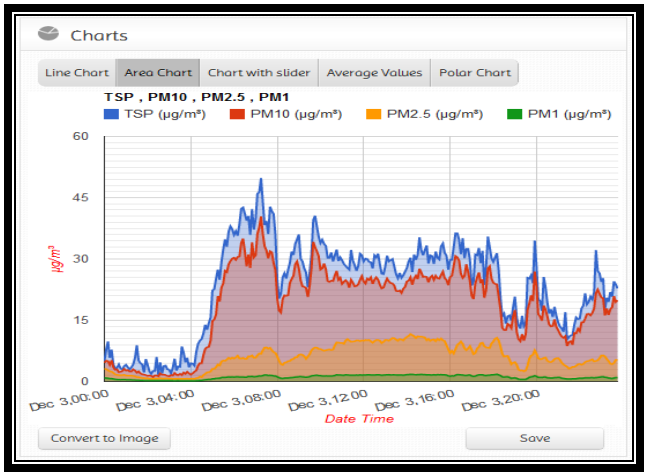


Figure 4.7

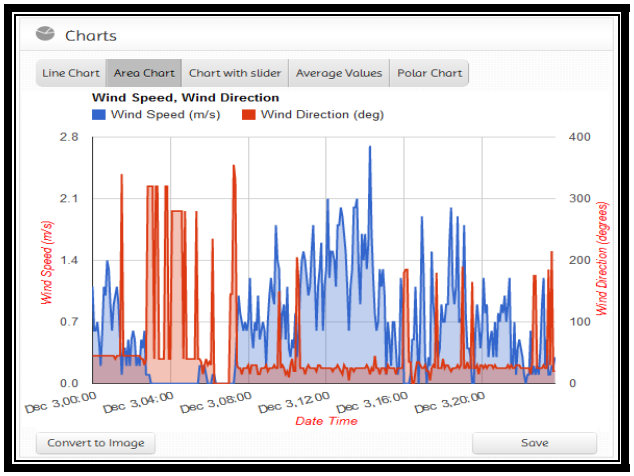


Figure 4.8

4.1.6 Chart with Slider

This tab shows you the selected channels on the line chart with a slider highlighted in the figure 4.9. Using the slider you can view the values for a specific time span. By default it shows you the values from 8:00 AM to 4:00 PM of the (first) selected date. You can change the range from the slider as shown in figure 4.9. Date/Time is displayed in the slider and you can view the value at any point on mouse hover. For instance, if you want to view the values for one hour you can set the range from the slider and drag the selected range to view the data for the same range. You can also save the chart as an image by clicking the *Convert to Image* button. Chart with slider is based on HTML 5 so there is no need to install Flash. HTML 5 is supported on most of the browsers. If you are using Internet Explorer, you need Internet Explorer 7 or above to make this application work properly.

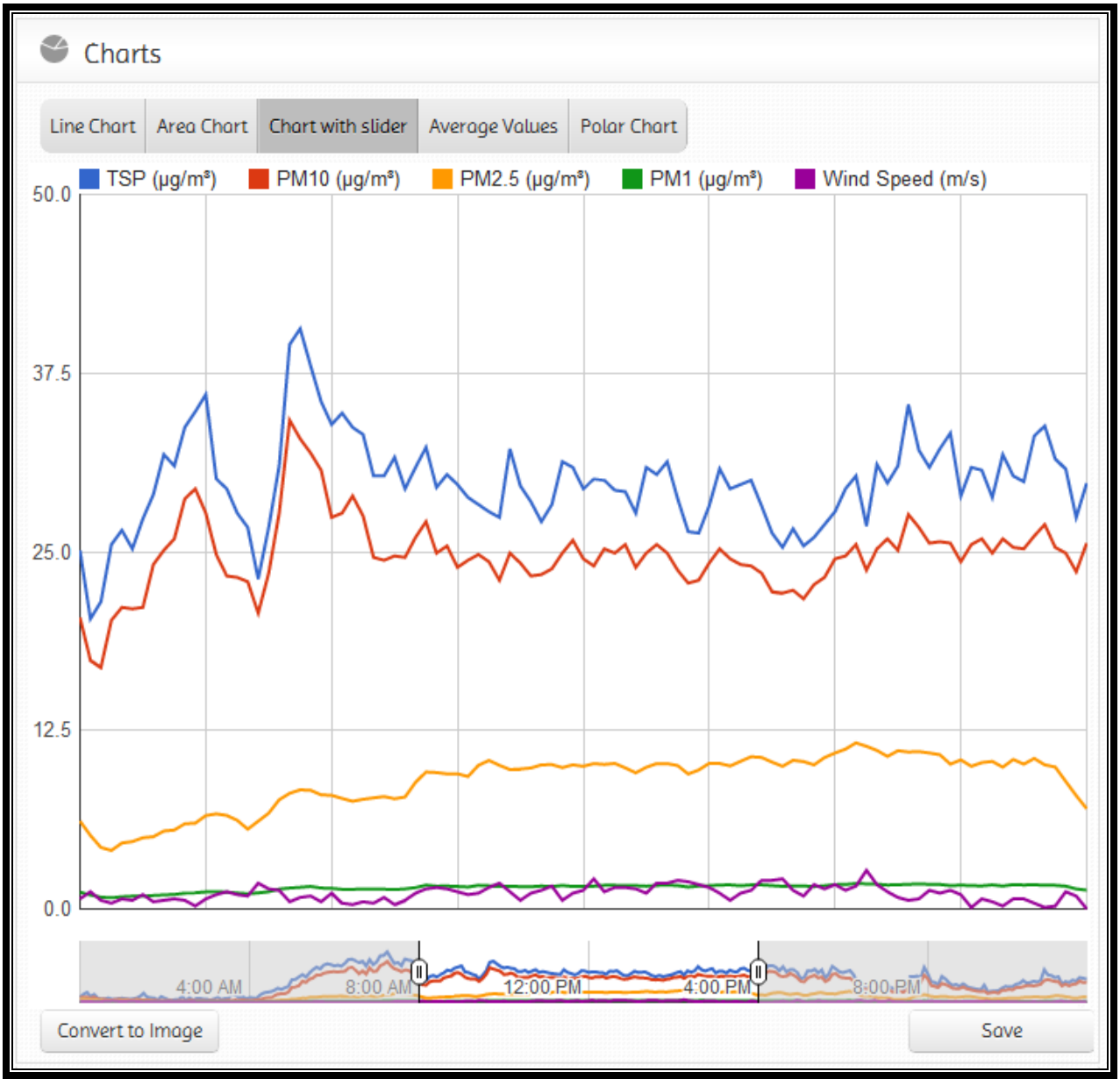


Figure 4.9

4.1.7 Average Values

Average values tab shows the average values of the selected data on the gauges. Average wind direction is displayed on the compass as shown in figure 4.10.

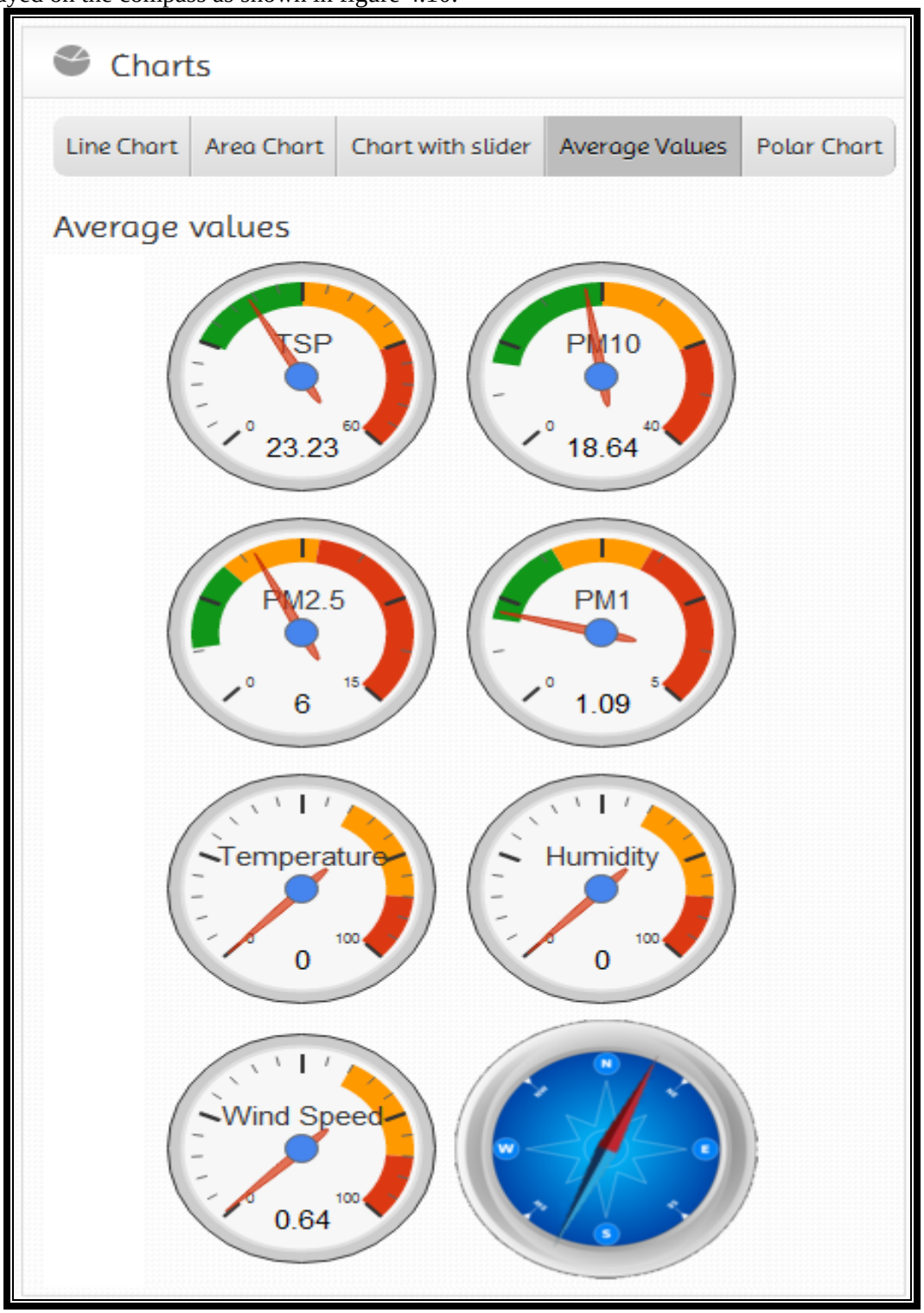


Figure 4.10

4.1.8 Polar Charts

Polar Charts are plot for dust particle measures against the wind Direction. This shows what the wind direction was when the particular level of particulates was measured. 'Average polar' chart shows the average values of the particulates for each wind direction value. Average polar chart is shown on the bottom of figure 4.11

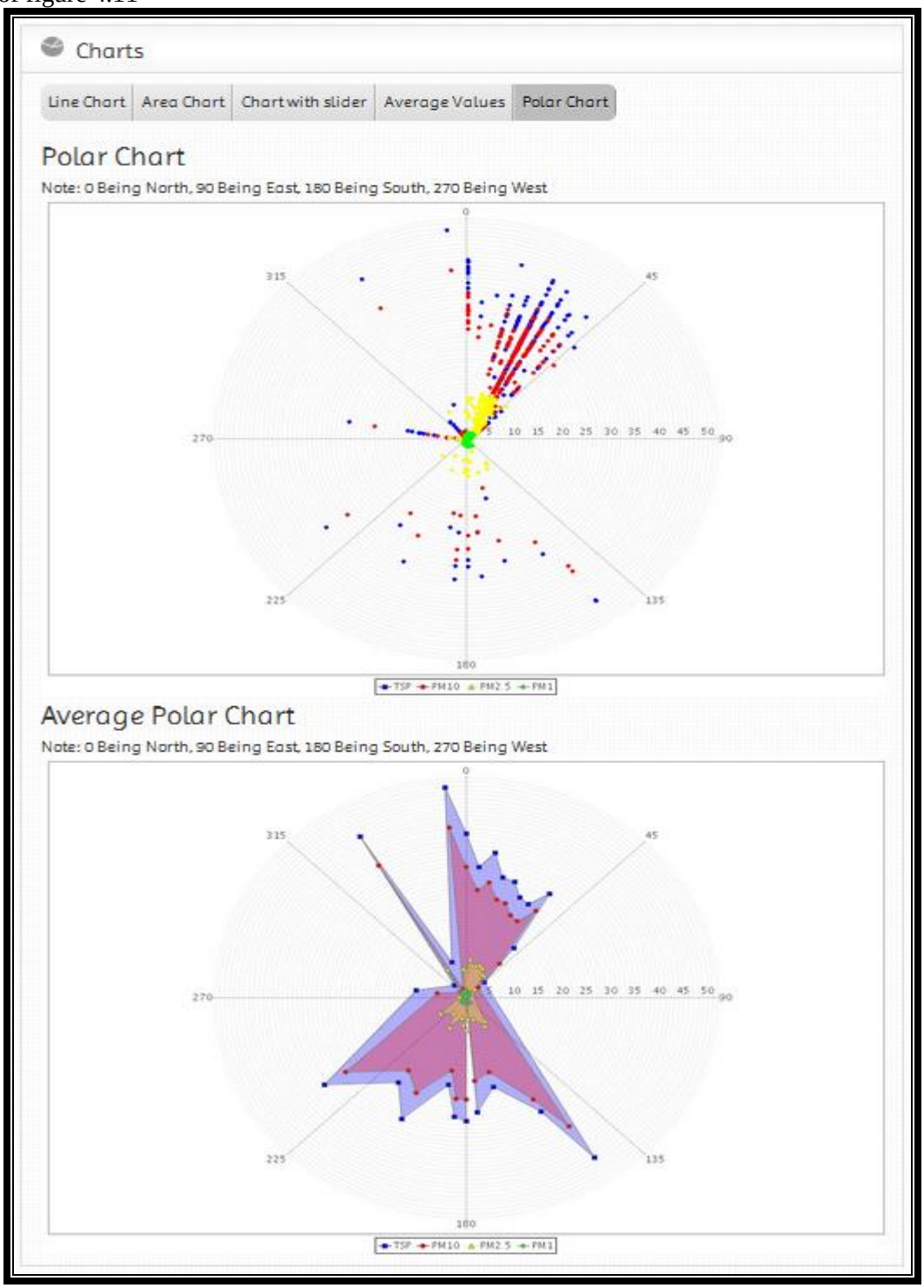
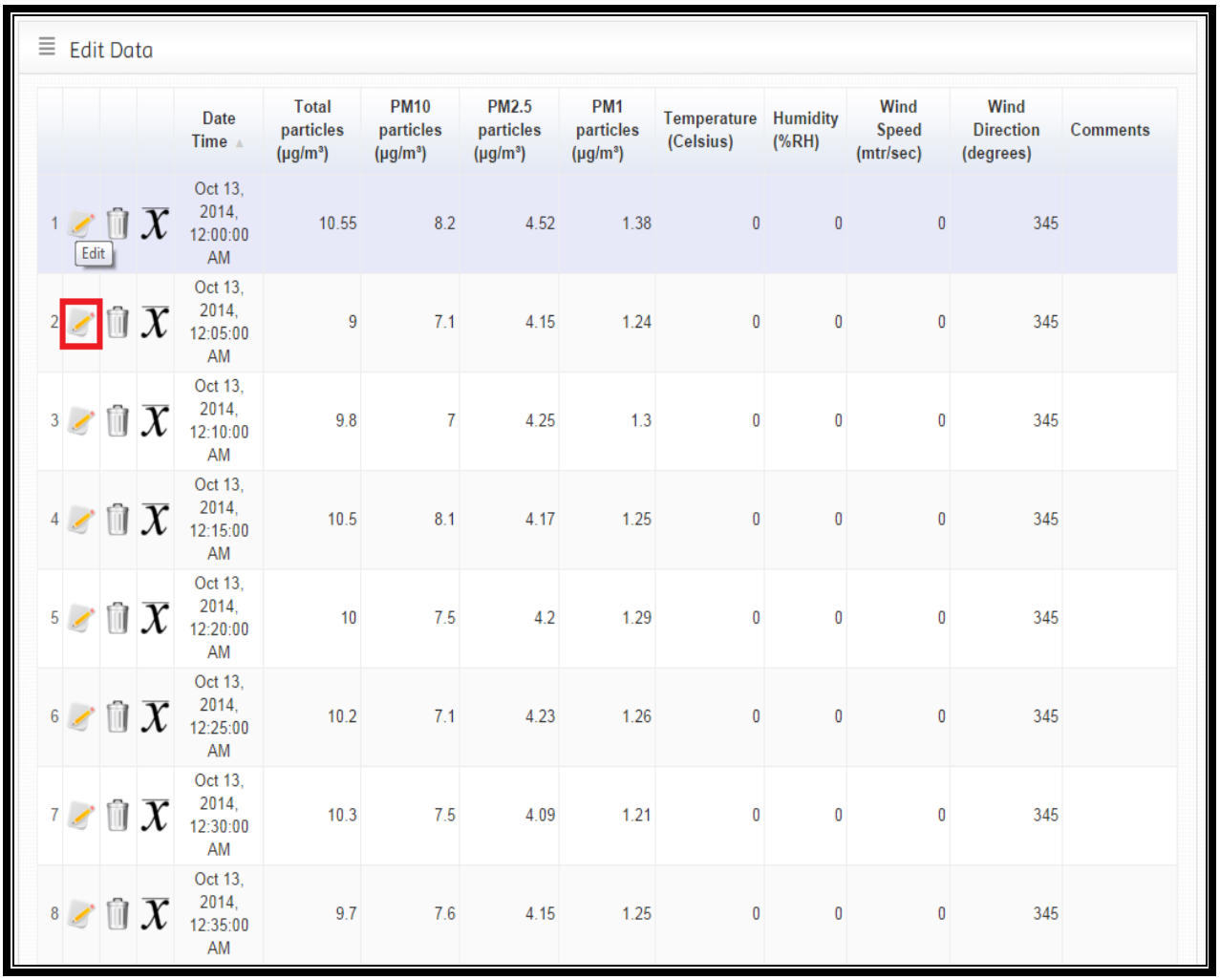


Figure 4.11

4.1.9 Edit Data

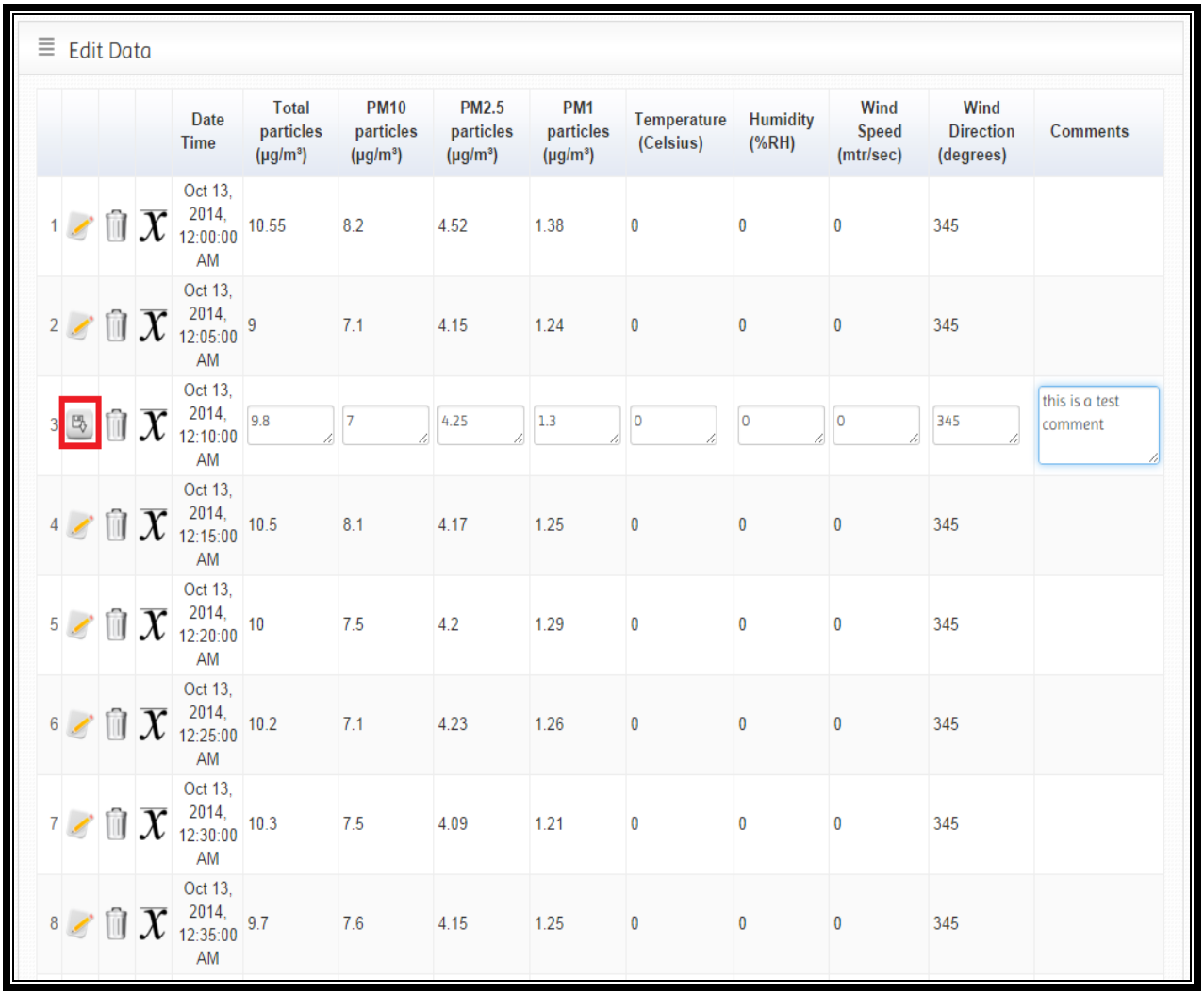
Edit Data option allows you to change or delete the data values manually. In case there is a value which does not seem to be correct, you can use this option to edit or delete the value by yourself. Clicking *Edit Data* button will display the edit data page as shown in figure 4.12.



	Date Time	Total particles (µg/m³)	PM10 particles (µg/m³)	PM2.5 particles (µg/m³)	PM1 particles (µg/m³)	Temperature (Celsius)	Humidity (%RH)	Wind Speed (mtr/sec)	Wind Direction (degrees)	Comments
1	Oct 13, 2014, 12:00:00 AM	10.55	8.2	4.52	1.38	0	0	0	345	
2	Oct 13, 2014, 12:05:00 AM	9	7.1	4.15	1.24	0	0	0	345	
3	Oct 13, 2014, 12:10:00 AM	9.8	7	4.25	1.3	0	0	0	345	
4	Oct 13, 2014, 12:15:00 AM	10.5	8.1	4.17	1.25	0	0	0	345	
5	Oct 13, 2014, 12:20:00 AM	10	7.5	4.2	1.29	0	0	0	345	
6	Oct 13, 2014, 12:25:00 AM	10.2	7.1	4.23	1.26	0	0	0	345	
7	Oct 13, 2014, 12:30:00 AM	10.3	7.5	4.09	1.21	0	0	0	345	
8	Oct 13, 2014, 12:35:00 AM	9.7	7.6	4.15	1.25	0	0	0	345	

Figure 4.12

This page contains a data table with three buttons on the left for each row named as *Edit*, *Delete*, *Set to Avg*. This data table shows 20 rows per page. You can always navigate to other pages and sort the table by any column. *Set to Avg* button sets the whole row to the average values of the selected data. *Edit* button allows you to edit the values manually as shown in the figure 4.13.



	Date Time	Total particles (µg/m³)	PM10 particles (µg/m³)	PM2.5 particles (µg/m³)	PM1 particles (µg/m³)	Temperature (Celsius)	Humidity (%RH)	Wind Speed (mtr/sec)	Wind Direction (degrees)	Comments
1	Oct 13, 2014, 12:00:00 AM	10.55	8.2	4.52	1.38	0	0	0	345	
2	Oct 13, 2014, 12:05:00 AM	9	7.1	4.15	1.24	0	0	0	345	
3	Oct 13, 2014, 12:10:00 AM	9.8	7	4.25	1.3	0	0	0	345	this is a test comment
4	Oct 13, 2014, 12:15:00 AM	10.5	8.1	4.17	1.25	0	0	0	345	
5	Oct 13, 2014, 12:20:00 AM	10	7.5	4.2	1.29	0	0	0	345	
6	Oct 13, 2014, 12:25:00 AM	10.2	7.1	4.23	1.26	0	0	0	345	
7	Oct 13, 2014, 12:30:00 AM	10.3	7.5	4.09	1.21	0	0	0	345	
8	Oct 13, 2014, 12:35:00 AM	9.7	7.6	4.15	1.25	0	0	0	345	

Figure 4.13

You can enter any numeric value in the text area for the channels and you can also add a comment for every edited row to show the comments in the reports. For instance, if there is a spike in the data due to the weather conditions you can add comment (i.e. false values due to weather conditions) to that spike. Click the *Save* button (highlighted in the figure 4.13) to update the values in the database. Remember all the edited values will be highlighted in the table next time you view them. When you click the *Delete* button it asks you to confirm if you want to delete the sample, when you click OK the whole row is deleted from the database.

4.2 Sound Stats

When you click the Sound Stats option in the left menu as show in the figure 4.14

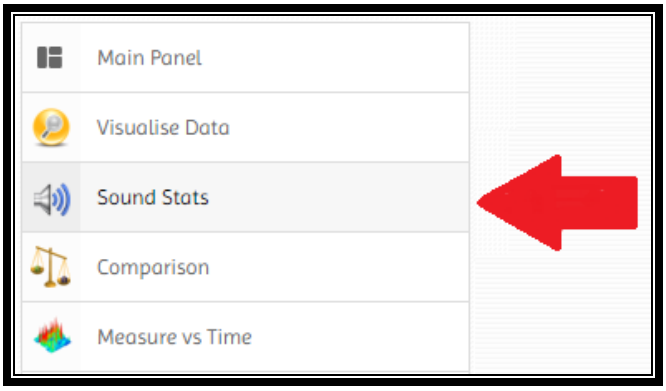


Figure 4.14

AirQWeb shows you the list of your instruments as show in figure 4.2, you can select the instrument you want as described in 4.1.1, then you will be asked to select the dates and interval for which you want the sound statistics.

4.2.1 Sound Date/Time Selection

This page allows you to select the date and time for the sound data and the interval to calculate the average values as show in figure 4.15

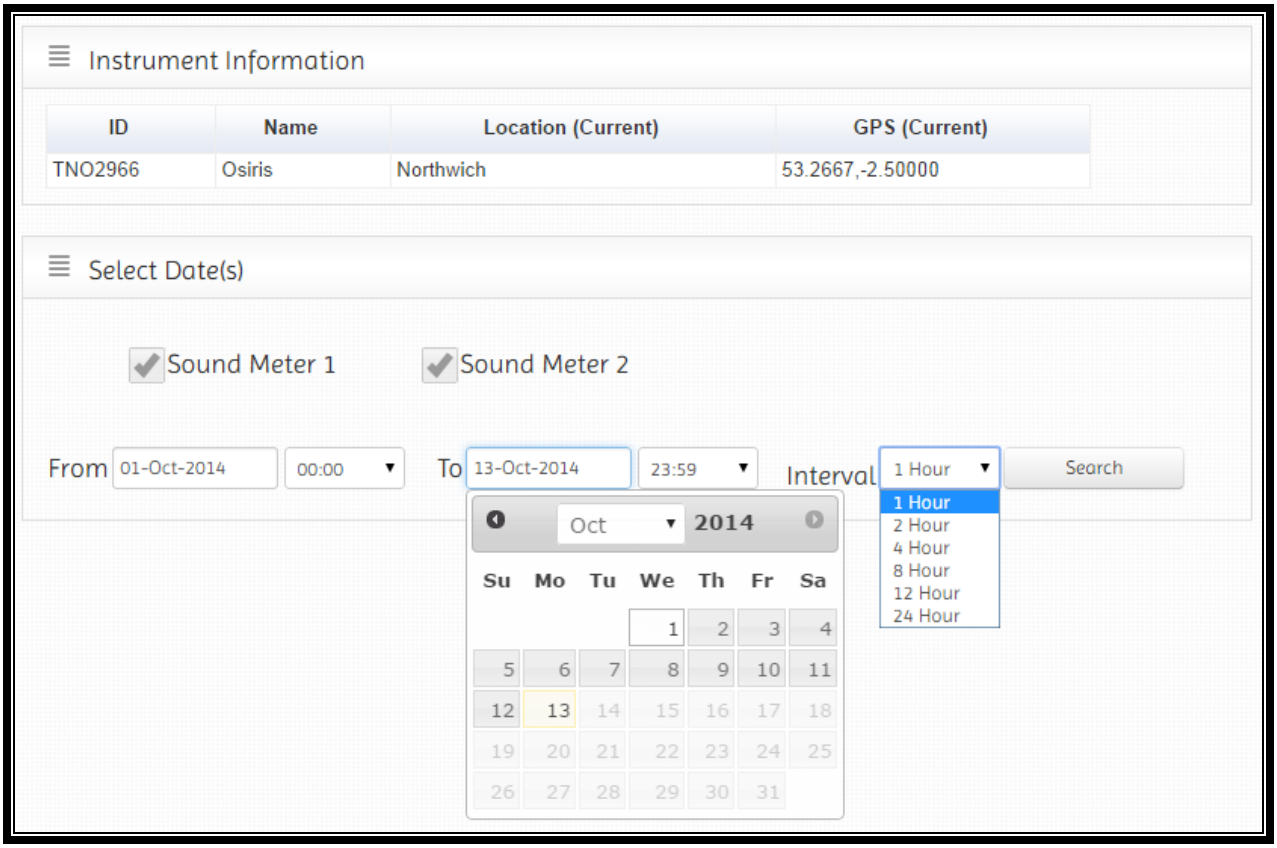
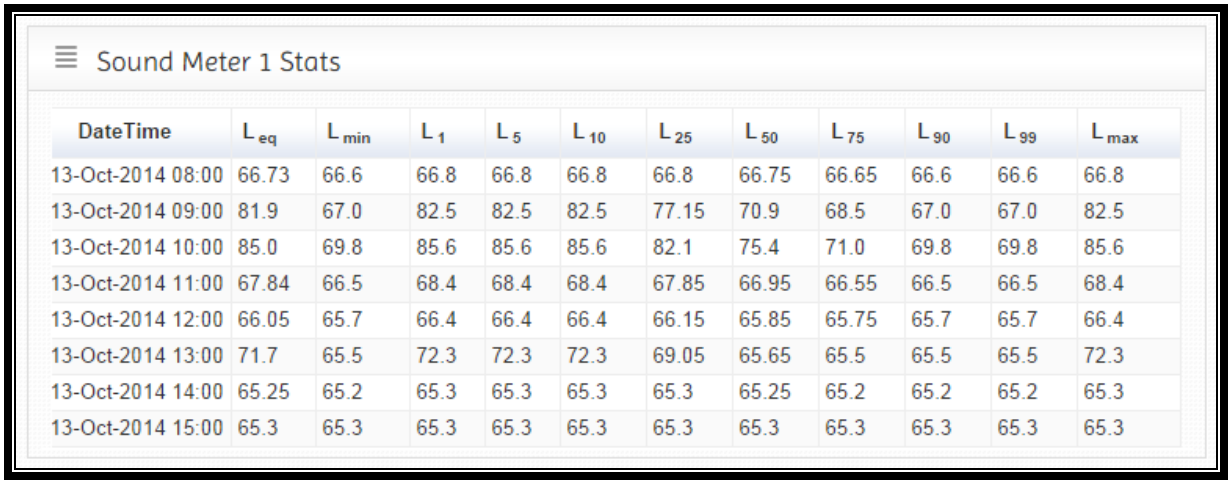


Figure 4.15

After you have selected the date, time and the interval value for the sound statistics, click the *Search* button to collect the sound data from the database and calculate the average values. If the sound data is not available an error message will be displayed that 'There is no sound data available. Please select other dates.'

4.2.2 Sound Statistics

If the data is available the application shows the sound stats as show in the figure below.



Sound Meter 1 Stats

DateTime	L_{eq}	L_{min}	L_1	L_5	L_{10}	L_{25}	L_{50}	L_{75}	L_{90}	L_{99}	L_{max}
13-Oct-2014 08:00	66.73	66.6	66.8	66.8	66.8	66.8	66.75	66.65	66.6	66.6	66.8
13-Oct-2014 09:00	81.9	67.0	82.5	82.5	82.5	77.15	70.9	68.5	67.0	67.0	82.5
13-Oct-2014 10:00	85.0	69.8	85.6	85.6	85.6	82.1	75.4	71.0	69.8	69.8	85.6
13-Oct-2014 11:00	67.84	66.5	68.4	68.4	68.4	67.85	66.95	66.55	66.5	66.5	68.4
13-Oct-2014 12:00	66.05	65.7	66.4	66.4	66.4	66.15	65.85	65.75	65.7	65.7	66.4
13-Oct-2014 13:00	71.7	65.5	72.3	72.3	72.3	69.05	65.65	65.5	65.5	65.5	72.3
13-Oct-2014 14:00	65.25	65.2	65.3	65.3	65.3	65.3	65.25	65.2	65.2	65.2	65.3
13-Oct-2014 15:00	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3

Figure 4.16

For each sound meter it calculates L_{eq}, L_{min}, L_1, L_5, L_{10}, L_{25}, L_{50}, L_{75}, L_{90}, L_{99} and L_{max} from the sound data for the selected interval and shows these values in the data table. It also plots a line chart for the sound data and $L_{eq}/L_{10}/L_{50}/L_{90}$ (you can select the radio button to plot any of these values on the graph) against the timestamp as show in the figure below.

Figure 4.17

4.3 Instrument Comparison

When you click on the instrument comparison option in the left menu list as shown in the figure 4.18,

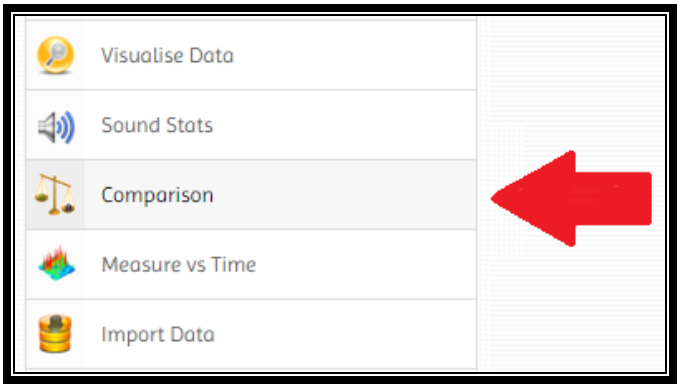


Figure 4.18

You will be directed to a page where you can select two instruments and the date and time for the selected instruments to compare the data as shown in the figure 4.19.

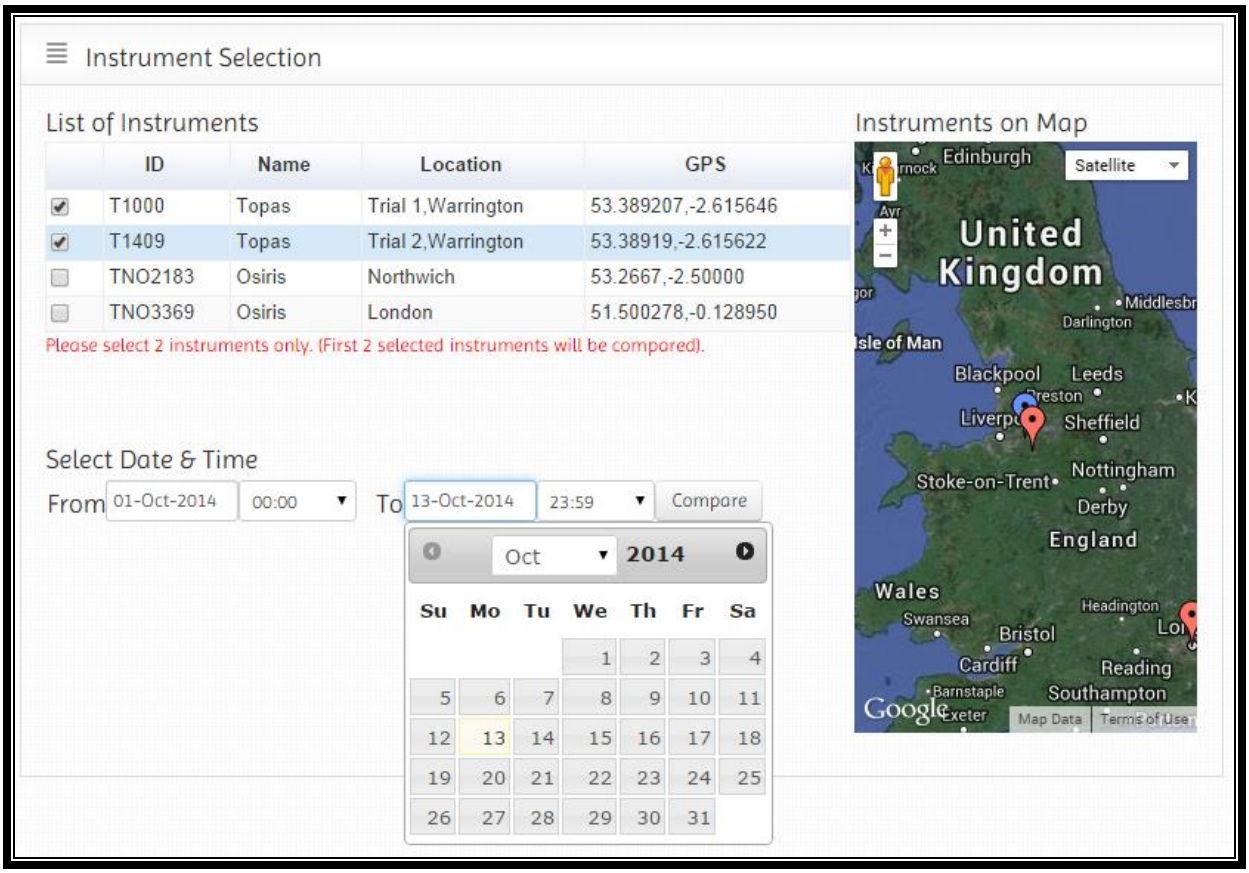


Figure 4.19

The page shows the instrument list with the check boxes on the left hand side. You can select two instruments for comparison. You can also see the instruments on the map. Select the date from the

calendar and time from the drop down menu and click on the *Compare* button to compare the data from the selected instruments. This will take you to the comparison page where you can visualize the comparison data on the line charts as shown in figure 4.20

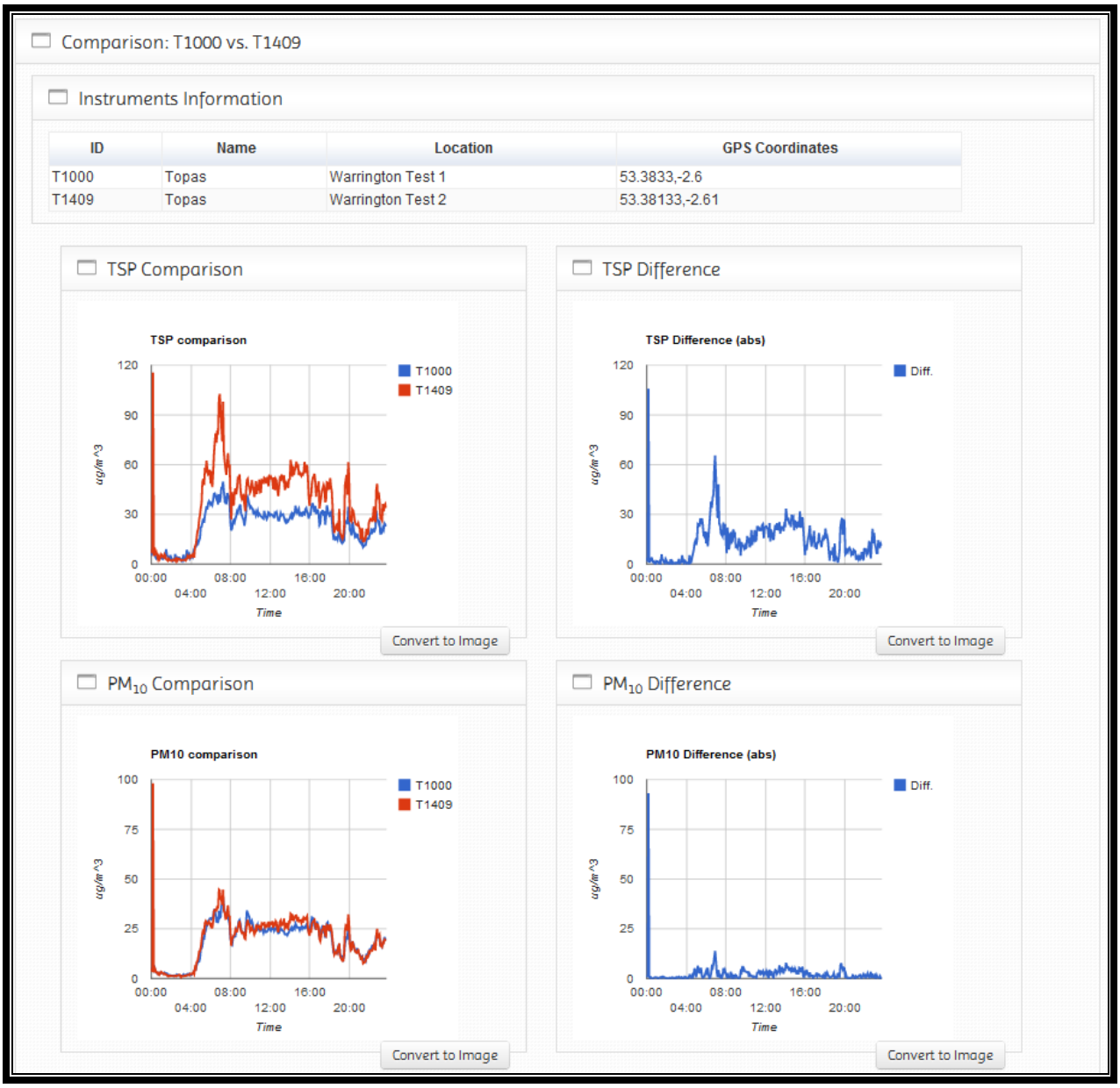


Figure 4.20

On top of the comparison page you can see the details of the selected instruments. Comparison is performed for each channel i.e. TSP, PM10, PM2.5 and PM1. On the left hand side line graph is shown for the comparison of each channel and on the right hand side the absolute difference between the two values for each point is shown. You can save each graph as an image by clicking *Convert to Image* button.

4.4 Measure vs. Time

When you on click the Measure vs. Time icon in the control panel as shown in the figure 4.21

Figure 4.21

You will see the instruments selection page which allows you to select an instrument, a channel, date range and a time interval to plot a 3D graph of the selected channel as shown in the figure 4.22.

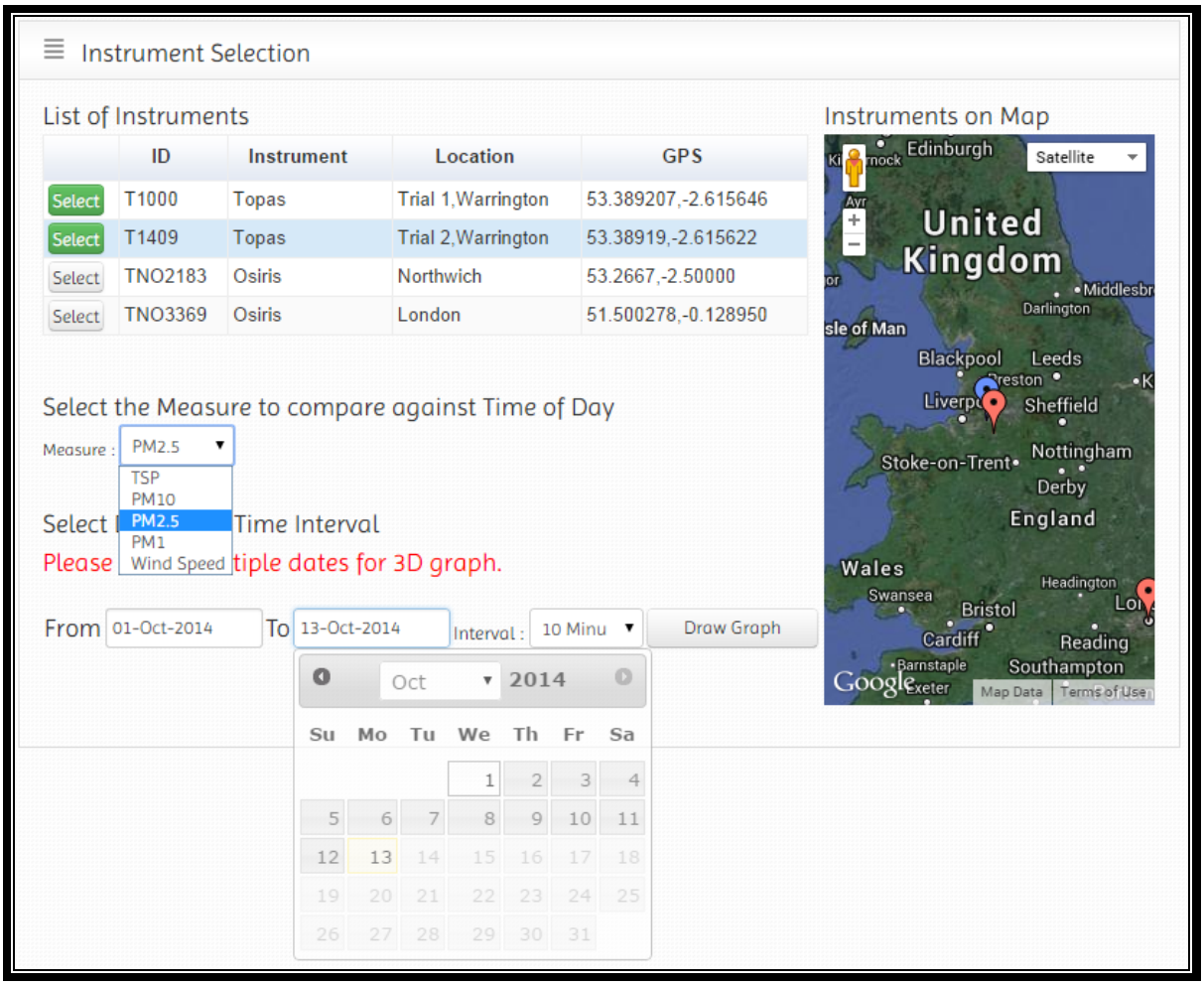


Figure 4.22

You can select an instrument from the table; when you click the ***Select*** button it shows you the input boxes to select channels and the date range. Clicking the ***Draw graph*** button as shown in figure 4.22 will generate 3D graph and a magic table as shown in figure 4.23 and 4.24.

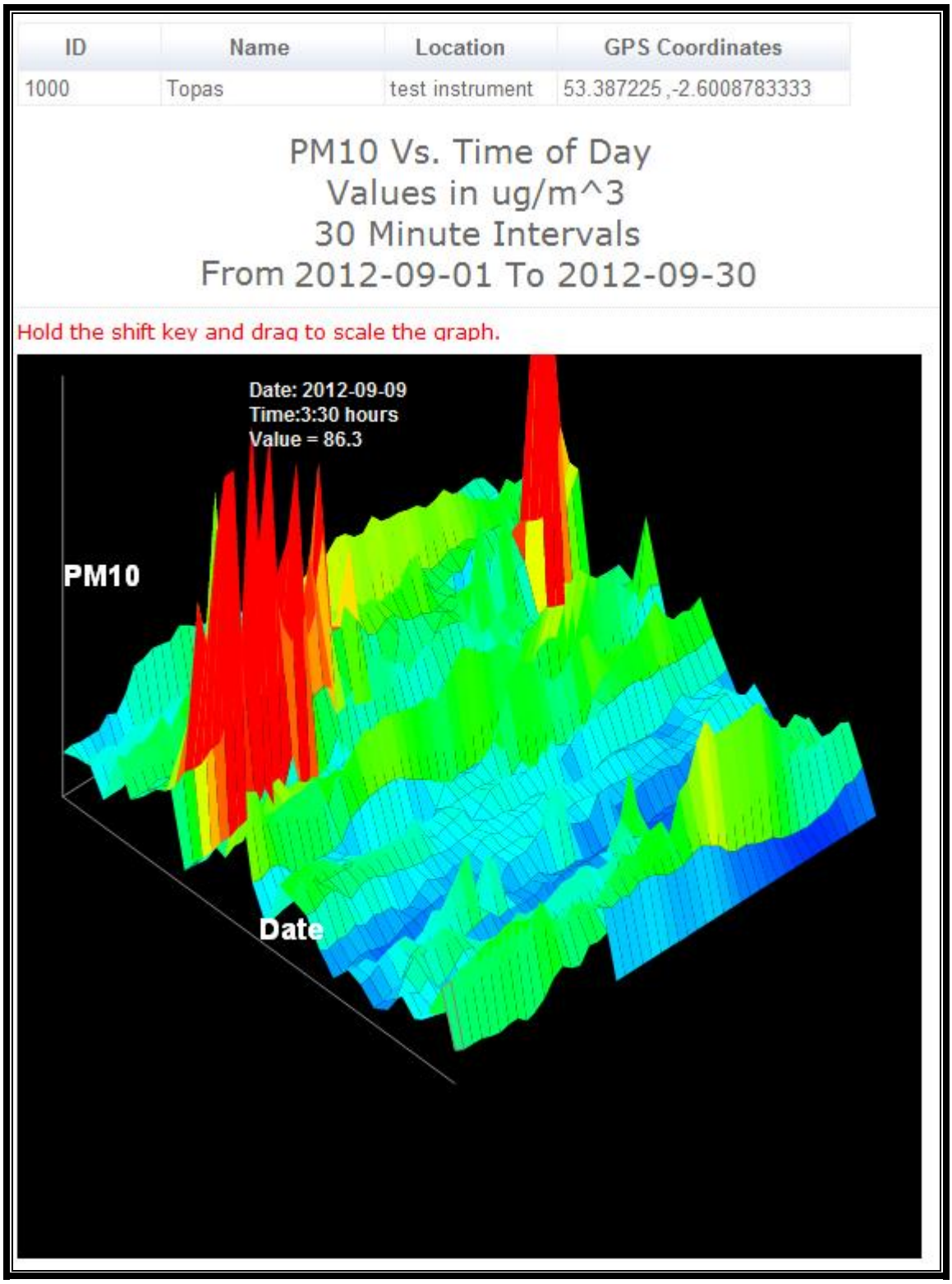


Figure 4.23

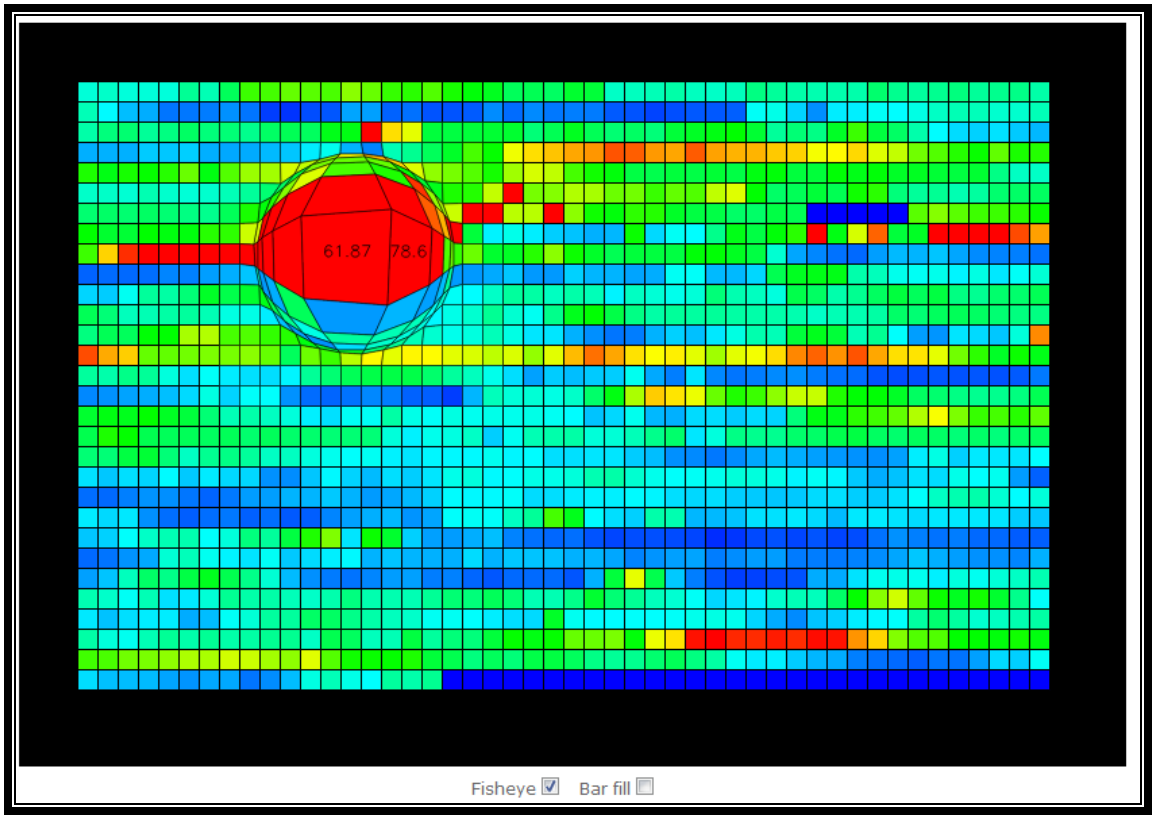


Figure 4.24 (a)

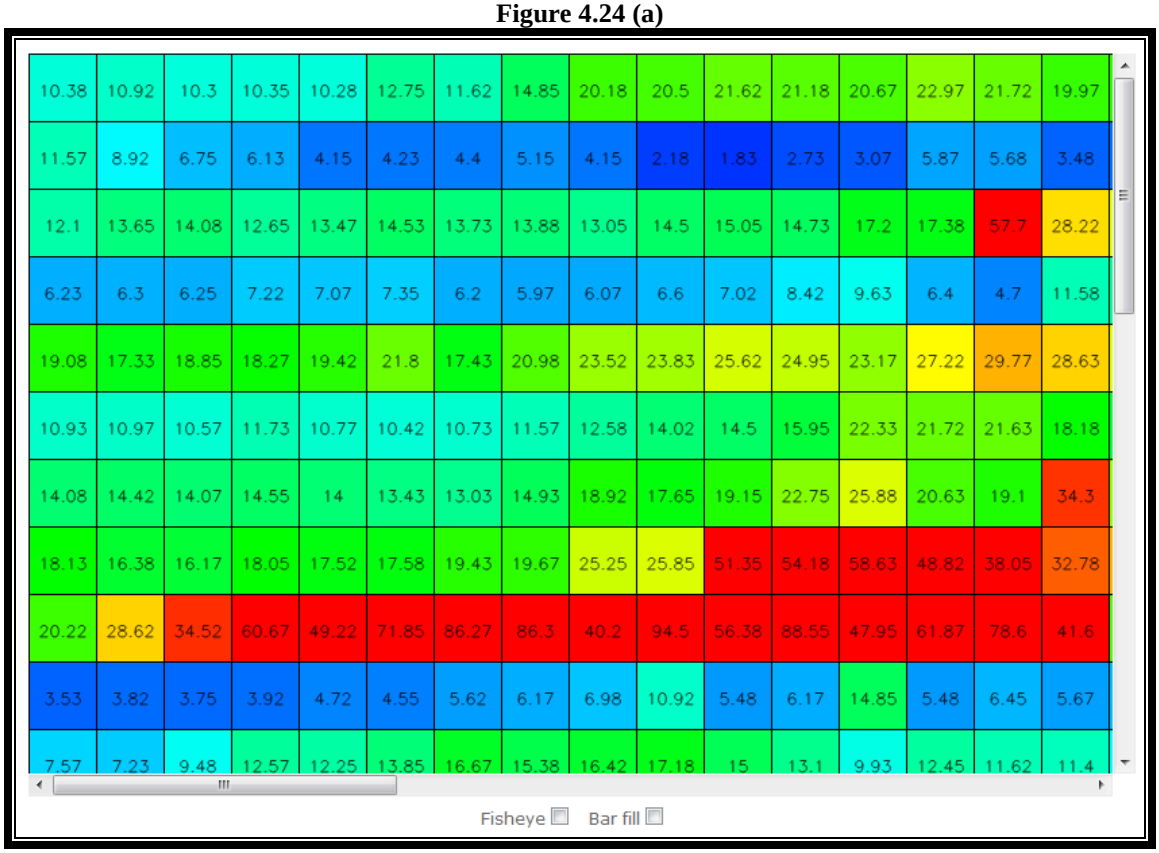


Figure 4.24 (b)

Figure 4.23 shows a 3D graph where one axis is for date and the other is for time of the day, the vertical axis shows the values of the selected channel. In the above example PM10 was selected with 30 minutes interval. On mouse hover the graph displays the values of that point. You can change the view of the graph and also you can scale the graph by holding the shift key and dragging the mouse on the graph. Figures 4.24 (a) and (b) show the magic table for the same values. You can change the view of the table by checking/unchecking the *Fisheye* and *Bar fill* check boxes.

4.5 Import Data

Import Data option allows you to import the data manually for any instrument in a particular format. When you click the Import Data option in the left menu as show in figure 4.25

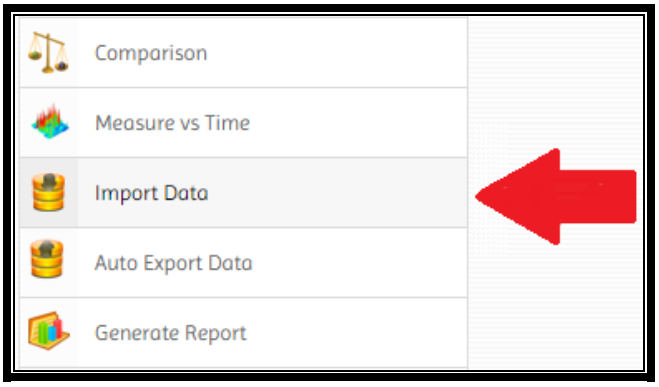


Figure 4.25

The application shows you the instrument list where you can select an instrument which you want to import data for as shown in figure 4.26.

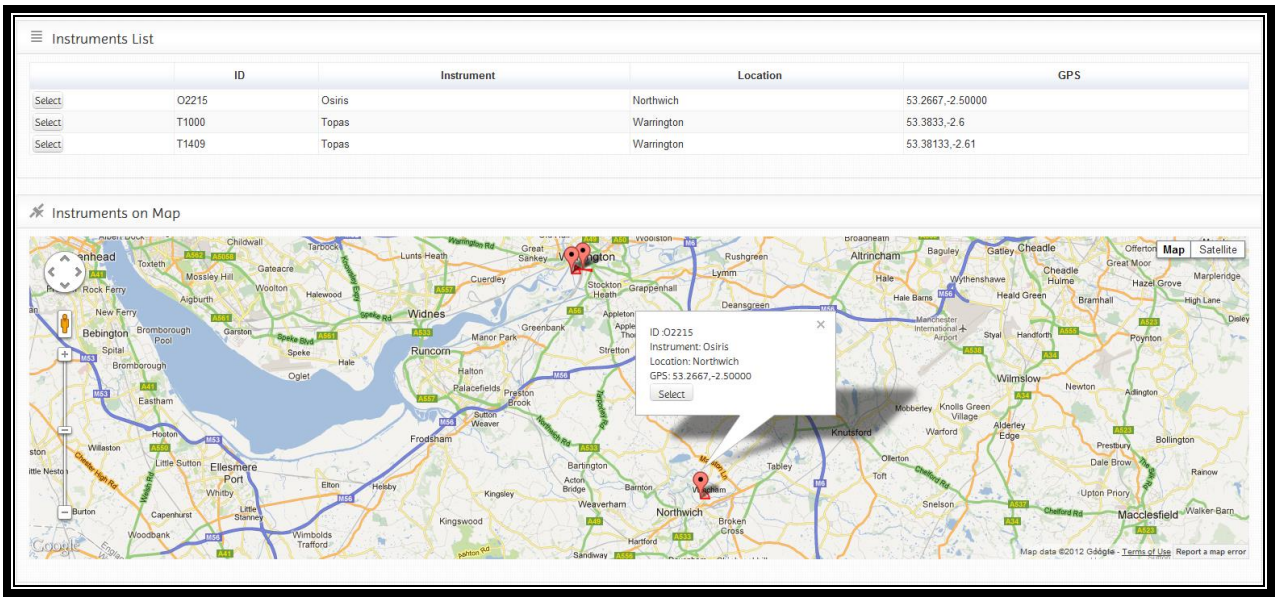


Figure 4.26

You can select an instrument as discussed in section 4.1.1. When you have selected an instrument, the application displays the import data page as shown in figure 4.27.

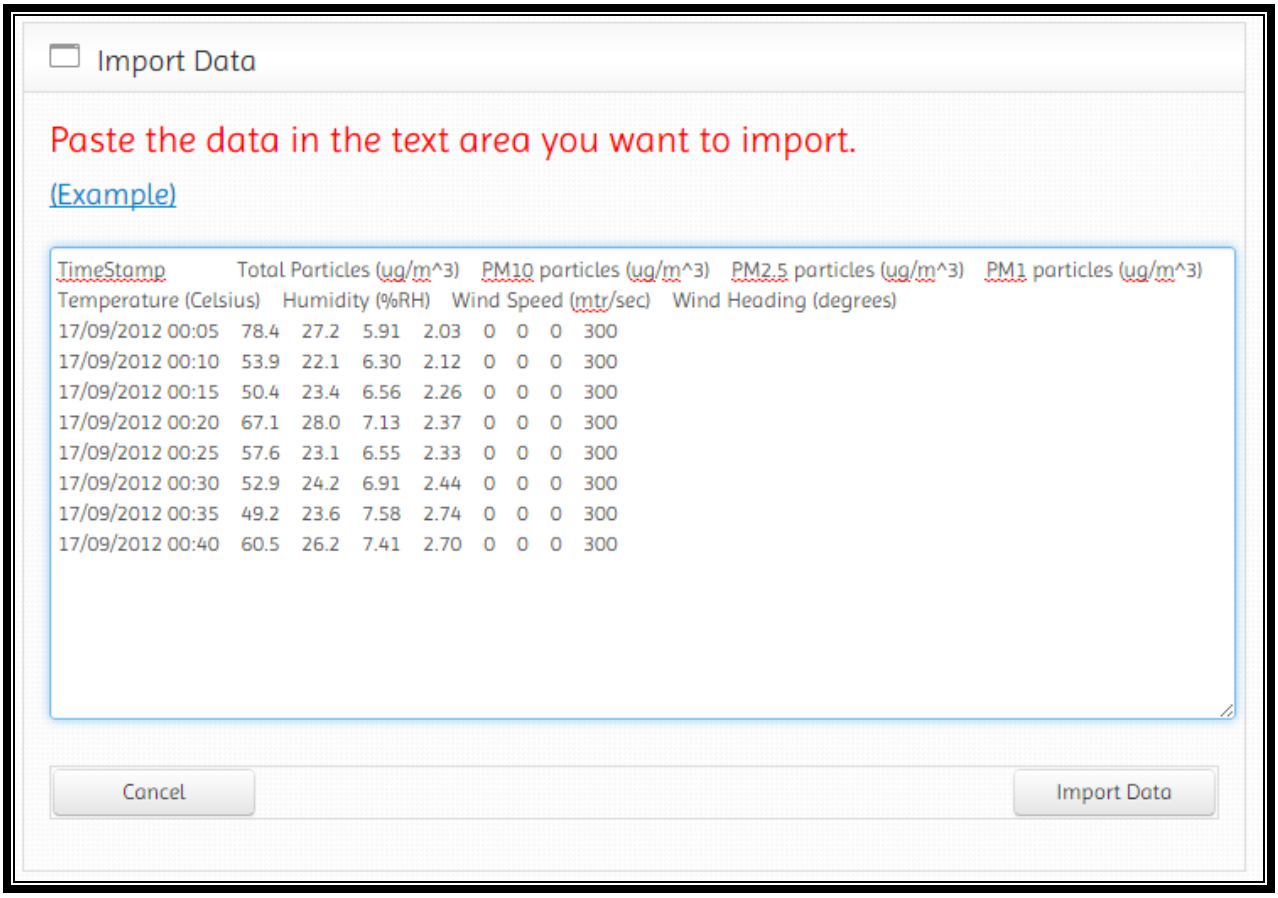


Figure 4.27

The application accepts only two formats which you can import the data in. The accepted formats are displayed when you take the mouse cursor over the *Example* label as shown in figure 4.29. Copy the data you want to import and paste it into the text area available on the page. After you have finished pasting the data into the text area, click the *Import Data* button to upload the data into the database for the selected instrument. The application displays a confirmation message when the data has been uploaded into the database as shown in figure 4.28.

Figure 4.28

An error message is displayed if the format of the data is incorrect. You can go back using the browsers back button to import the data again.

4.6 Auto Export Data

This option allows you to setup configurations to export the data and send it to the email address (es) automatically. When you click this option in the left menu it show the list of the instruments after you select the instrument it show you the options to setup auto data export as shown in the figure below.

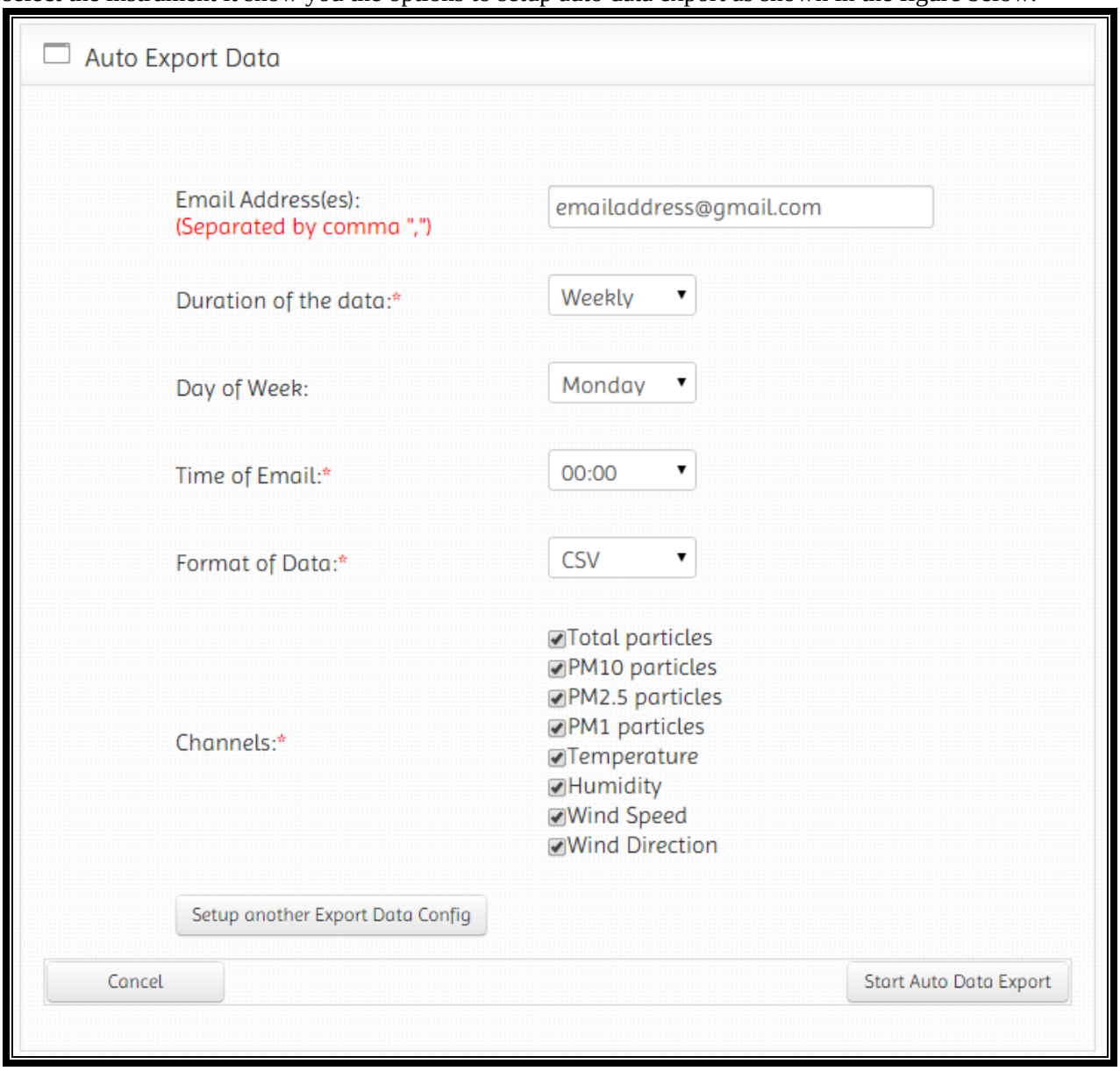


Figure 4.29

You can enter multiple email addresses separated by comma, select the duration of the data (i.e. Daily, Weekly, Monthly), select the day of the week (if weekly data), select the time of email, select the format of the data (i.e. PDF, Excel or CSV) and you can also select the channels you want to include in the exported file. The application allows you to setup up to 3 different configurations for instance, you want daily data as well as weekly data as well as monthly or if you want data in all three different formats, you can select 3 different configurations.

4.7 Generate Report

Generate report option enables you to generate reports for the data from the instruments. When you click the option in the left menu as shown in the figure 4.30

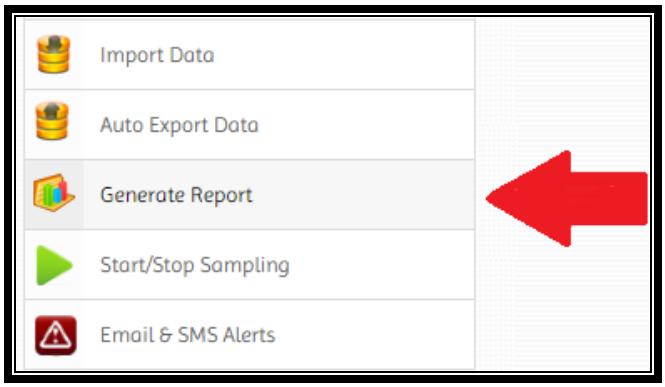


Figure 4.30

The application ask you to select an instrument as discussed in section 4.1.1 and then you can select the date(s) as discussed in section 4.1.2. After you have selected the dates for the report, the application asks you to select the channels you want to include in your report and their exceedence limits as shown in figure 4.31.

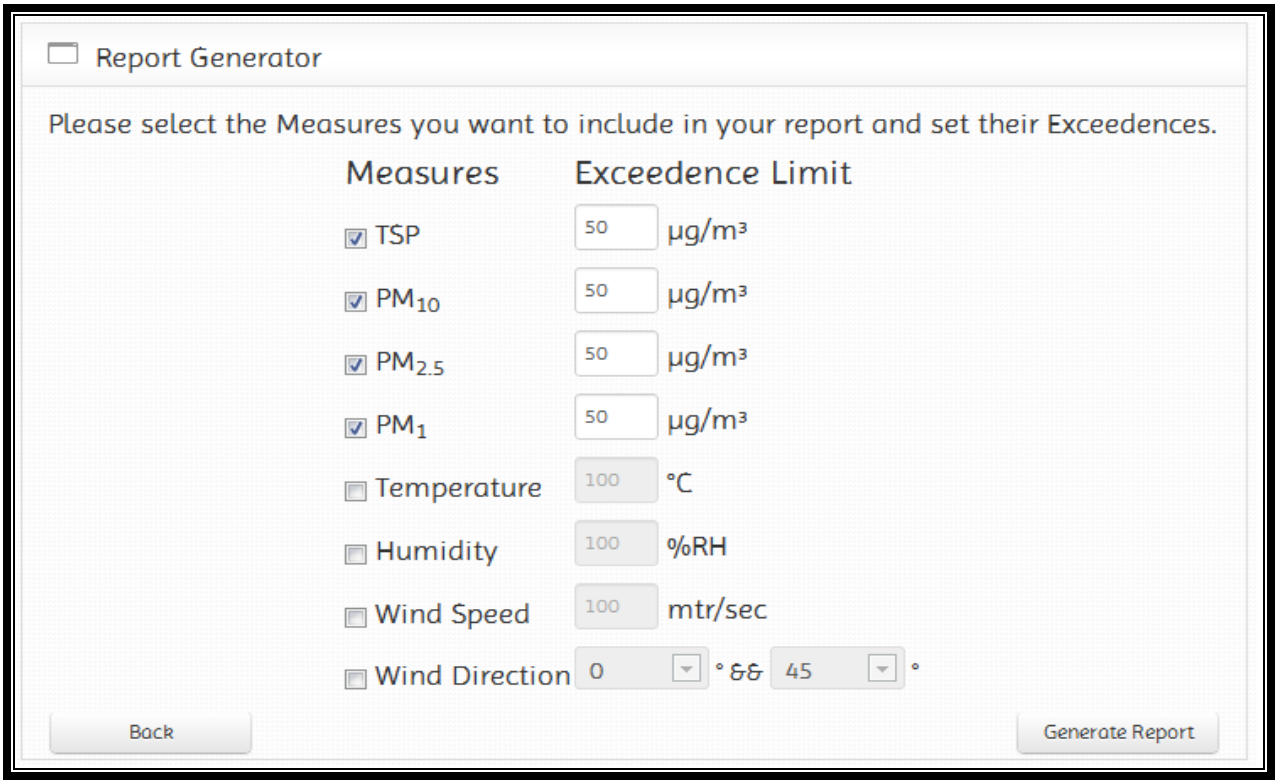


Figure 4.31

You can check/uncheck the channels you want to include in you report and set their exceedence limits. If the value is greater than exceedence limit it will be highlighted in the report. Click the *Generate Report* button to generate a report in PDF or MS Excel format.

4.8 Start/Stop Sampling

When you click the Start/Stop Sampling option in the left menu as show in the figure below

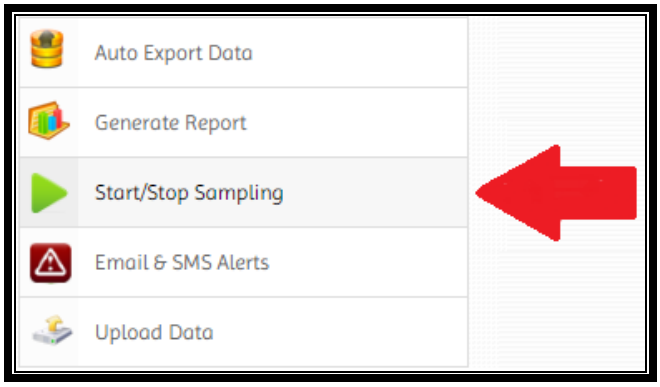


Figure 4.32

You will be shown a list of your instruments. You can select any instrument as discussed in section 4.1.1. After that it displays start/stop sampling options as shown in figure 4.33.

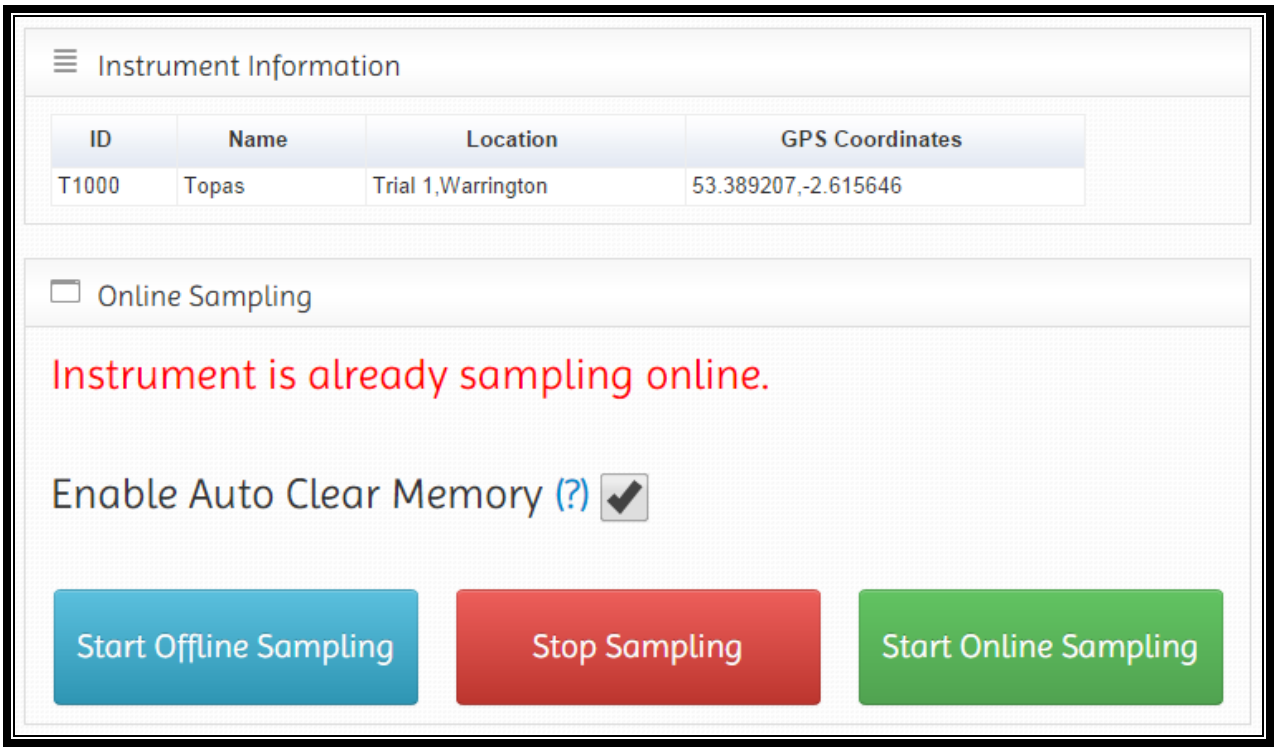


Figure 4.33

If the instrument is already sampling online or offline, the application shows the message on top of the page and a *Stop Sampling* button as well. You can start *Offline Sampling* or *Online Sampling*. There is also an option to 'Auto Clear memory', by default this option is enabled, if you do not want to clear the memory automatically you can uncheck this option. Starting offline sampling will stop online sampling.

4.9 Email & SMS Alerts

This option allows you to setup alarm configuration for the online sampling instrument. When you click this option in the left menu as shown in the figure below

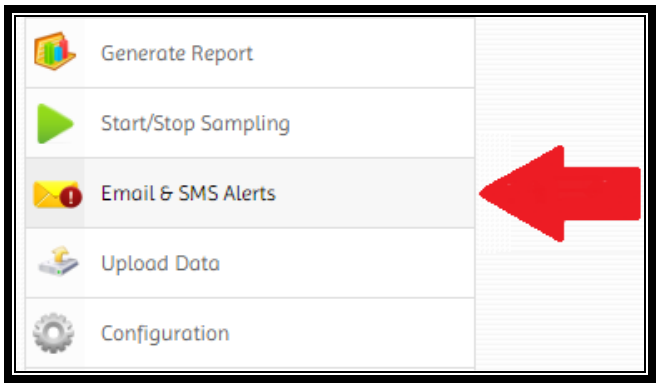


Figure 4.34

You will be asked to select the instrument you want to setup the configurations for. Instrumentscan be selected as discussed in section 4.1.1. After you have selected the instrument, it shows you the alarm configuration wizard with four tabs as show in figure 4.35

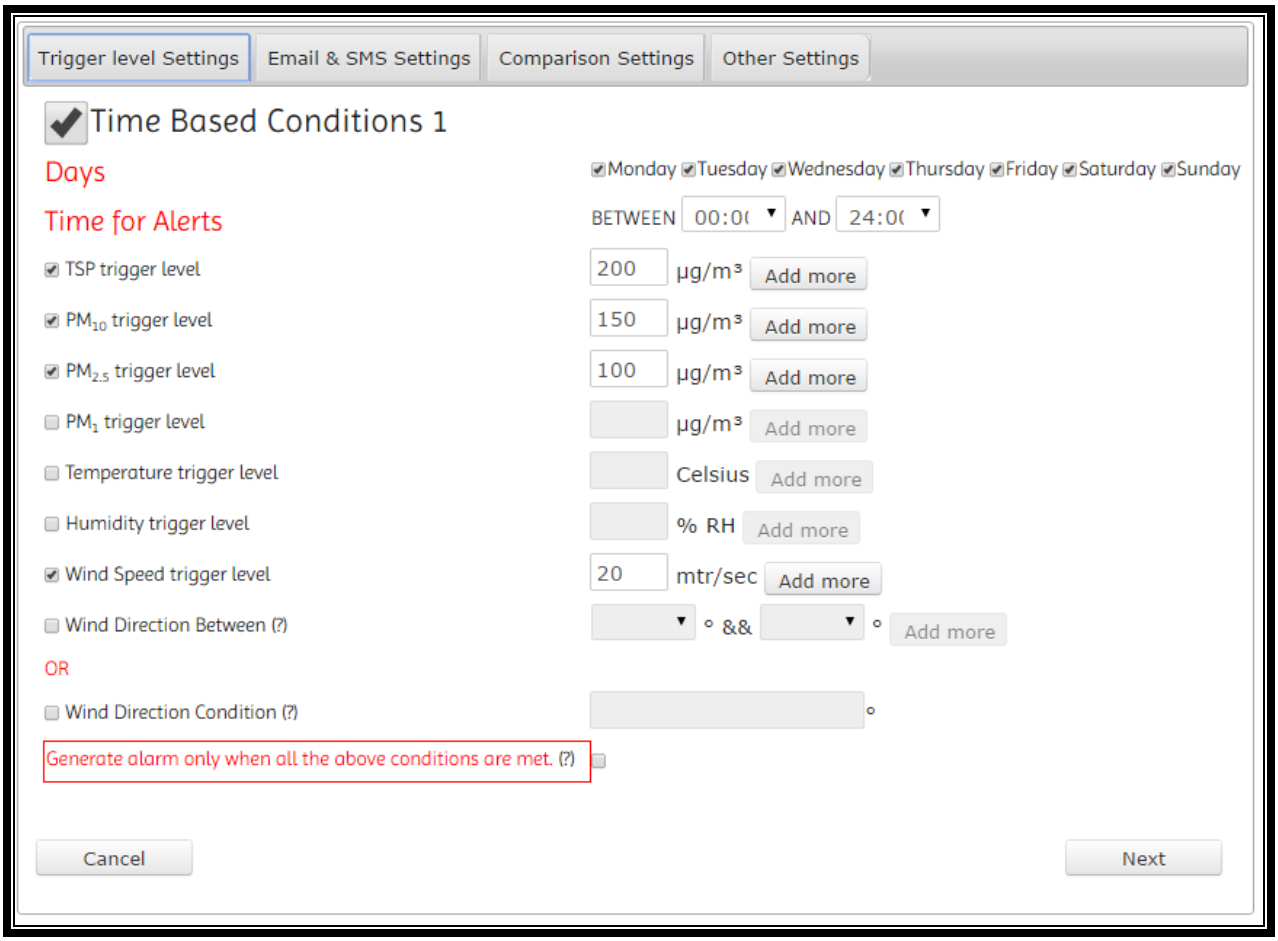


Figure 4.35

The first tab allows you to setup up to 3 conditions for the alerts. You can select multiple days and the hours of the day for the alerts. For instance, if you want alerts only Monday to Friday between 8 AM and 2 PM. You can set the trigger levels for the channels for which you want to generate the exceedence alarms. Multiple alert levels can be set i.e. Level 1 and level 2. If you want to generate alerts only when all the selected channels exceed the trigger values, you can check 'Generate alarm only when all the above conditions are met' option, leave this option unchecked if you want to generate alerts when any of the selected channel value exceeds the trigger value you have set. After you have finished setting up these conditions you can click the *Next* button which will take you to the Email & SMS Settings tab as show in the figure 4.36.

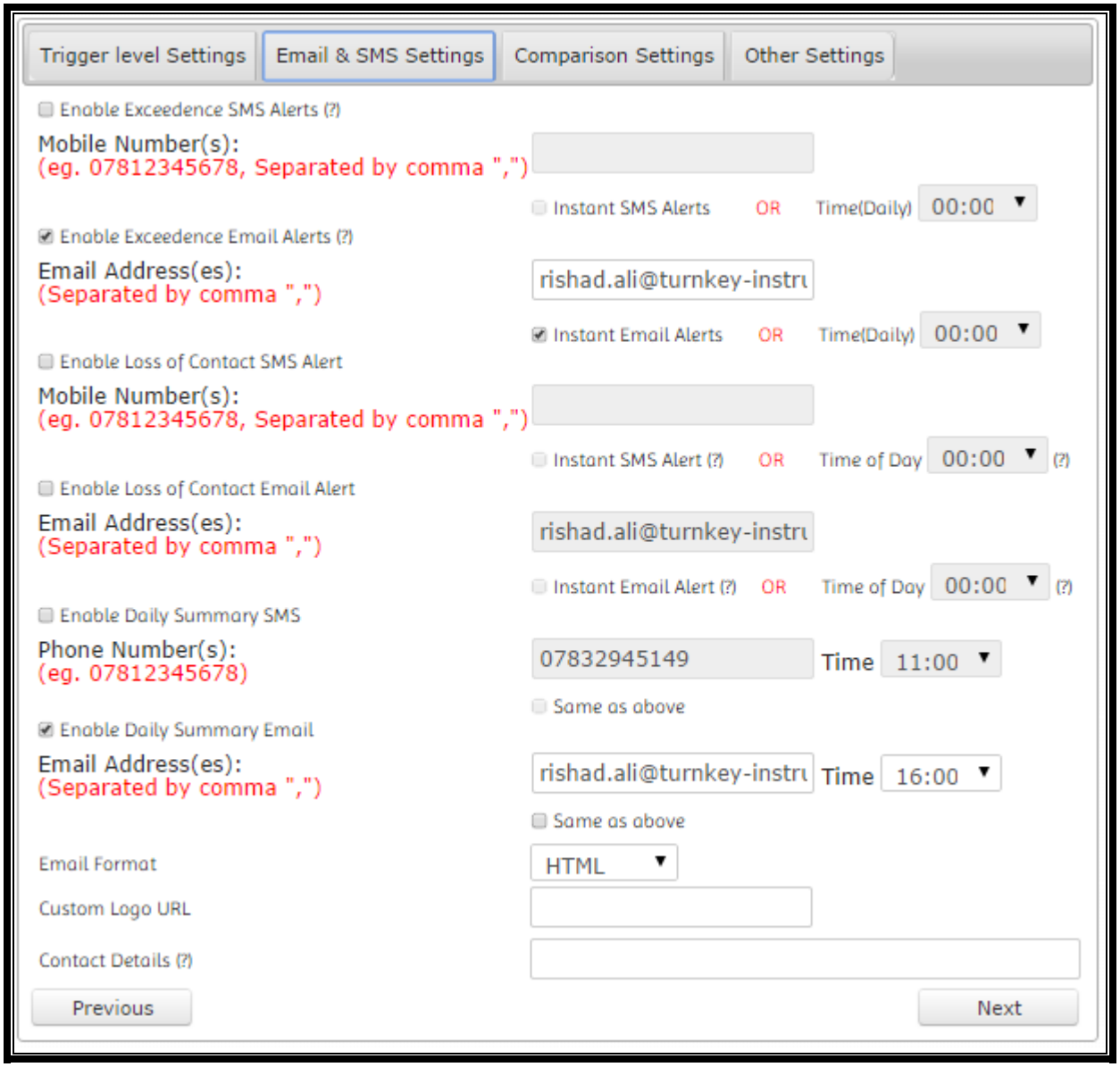


Figure 4.36

Here you can set SMS and email contact details and the conditions to generate the alerts. If you want to receive the email or SMS alerts as soon as the values exceed the trigger levels you have set in the

previous tab, you can check the 'Instant alert' option or if you do not want instant alerts you can select a time of the day from the drop down list to generate one email with all the notifications. You can select different email formats, HTML if you want to get emails in proper format with images and logos or plaint text otherwise. If you want to include a logo of your company in the email alerts, you can enter the URL for the image logo. You can also enter the contact details of the concerned person in case of an exceedence to be included at the bottom of the email alerts. Once you are done setting up the contact details click the *Next* button to go to the Comparison Settings tab as shown in the figure below.

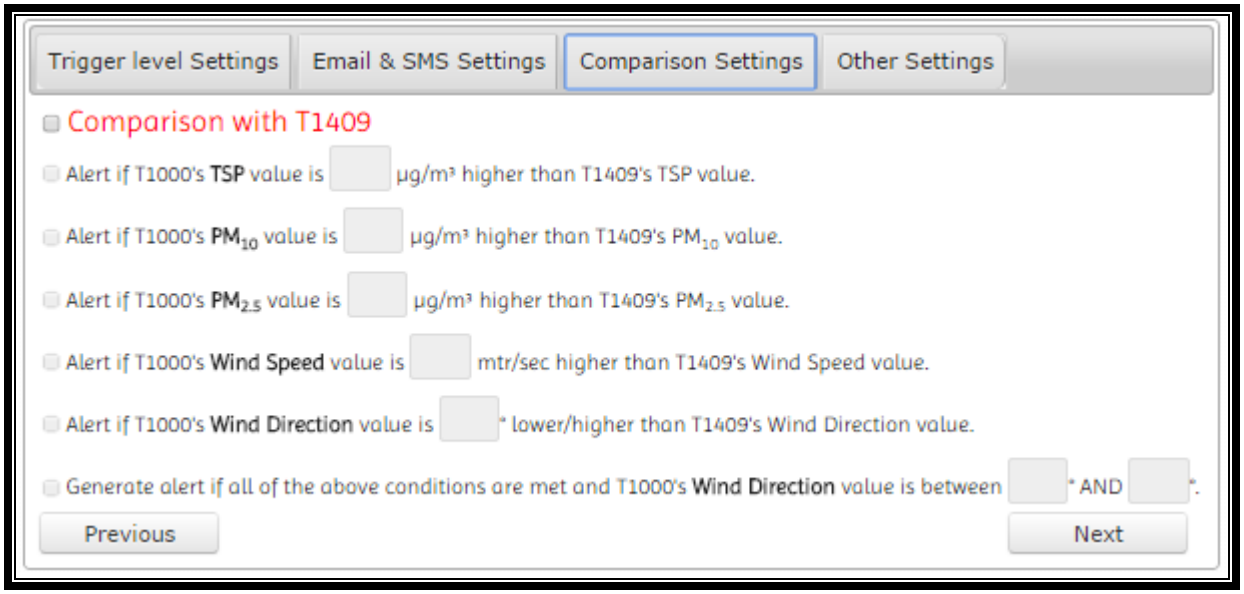

Trigger level Settings
Email & SMS Settings
Comparison Settings
Other Settings
Comparison with T1409
Alert if T1000's TSP value is µg/m³ higher than T1409's TSP value.
Alert if T1000's PM10 value is µg/m³ higher than T1409's PM10 value.
Alert if T1000's PM2.5 value is µg/m³ higher than T1409's PM2.5 value.
Alert if T1000's Wind Speed value is mtr/sec higher than T1409's Wind Speed value.
Alert if T1000's Wind Direction value is ° lower/higher than T1409's Wind Direction value.
Generate alert if all of the above conditions are met and T1000's Wind Direction value is between ° AND °.
Previous
Next

Figure 4.37

This tab allows you to setup the comparison alerts. For example, if you want to generate alerts if the channel 1 value of instrument ABC is x units greater than the channel 1 value of instrument XYZ, you can select the instrument by ticking the checkbox and set the values. If you do not want to compare instruments then just click next to go to the Other Settings tab as show in figure 4.38.

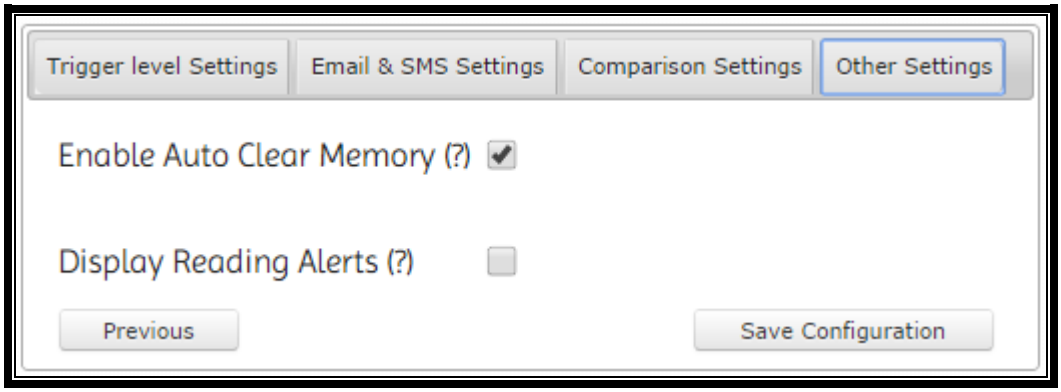


Figure 4.38

This tab gives you a checkbox for Display Reading Alerts. If the instrument is sampling with 15 minute storage interval but instrument's screen refresh time is 10 seconds and you want to get the alerts for the screen refresh values, you can check this option. Remember, the data will be stored according to the storage interval (i.e. 15 Minute in this example). After you have finished setting up, click the *Save*

Configuration button to save the alert configurations and start SMS and email alerts. Application shows you a confirmation message if the configuration is saved into the database successfully as shown in the figure below, otherwise an error message will be displayed.

Figure 4.39

4.9.1 Email & SMS Alerts For Sound

If you have a sound meter attached to the dust monitoring instrument to monitor the sound pollution, you can configure AirQWeb to generate alerts based on Equivalent Continuous Sound Pressure Level (L_{eq}) or different Percentile levels (L_1 to L_{99}) for different time intervals. To Setup sound Alerts, click on Email & SMS Alerts option in the left menu then select an instrument as described in the previous section.

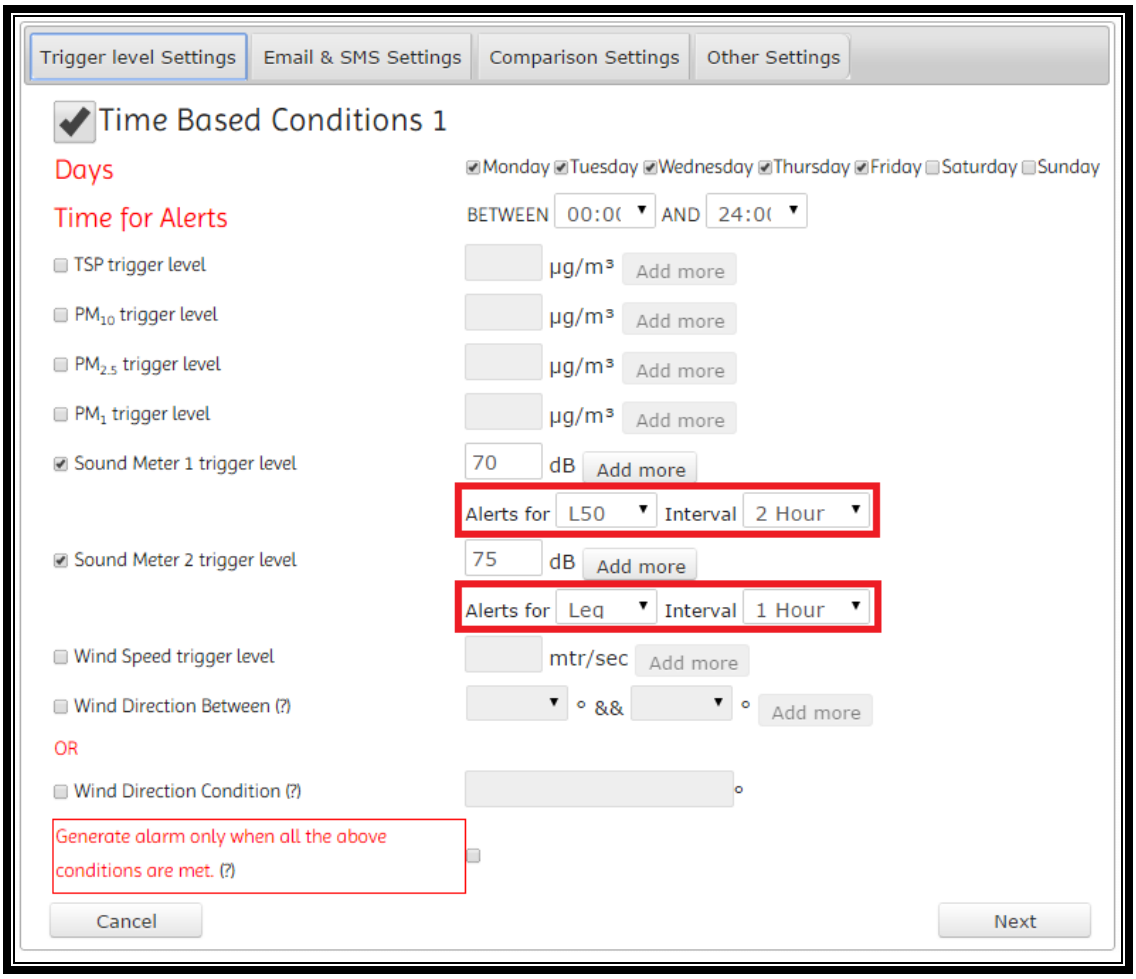


Figure 4.40

As show in figure 4.40, you can set 'Sound Meter 1 trigger level' (i.e. 70 dB in this case), select 'Alerts for' from the dropdown list (L_{50}) and the interval (2 Hours). For each new data sample AirQWeb will calculate L_{50} for 2 hours and generate alert if the value of L_{50} is greater than 70 dB. AirQWeb allows you to configure sound alerts for L_{eq}, L_1, L_5, L_{10}, L_{25}, L_{50}, L_{75}, L_{90}, L_{99} for interval of 15 Minute, 30 Minute, 1 Hour, 2 Hour, 4 Hour, 8 Hour, 12 Hour, 24 Hour.

4.10 Upload Data

Although the application uploads the data into the database automatically every 6 hours but this option enables you to upload the available samples from the memory of the instruments into the database manually. When you click the Upload Data option in the left menu, the application asks you to select instrument from the list as discussed in section 4.1.1, after that the application shows you the available samples in the memory of the selected instrument as shown in figure 4.41.

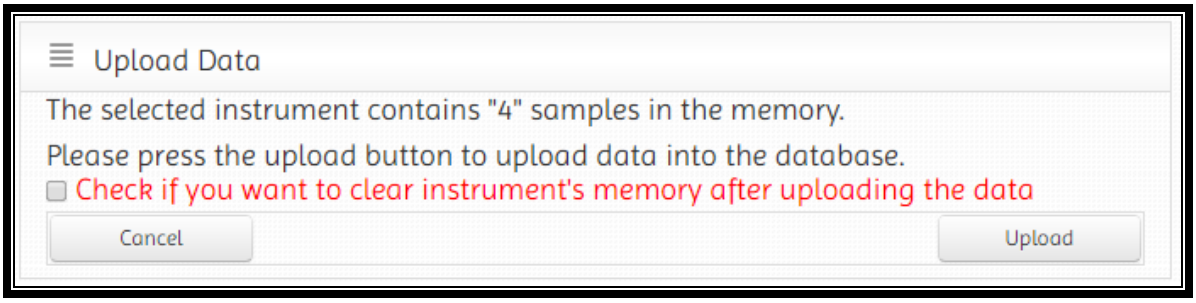

Upload Data
The selected instrument contains "4" samples in the memory.
Please press the upload button to upload data into the database.
Check if you want to clear instrument's memory after uploading the data
Cancel
Upload

Figure 4.41

You can select the check box if you want to clear the instrument's memory after uploading the data. Click *Upload* button to upload the data into the database from the selected instrument.

4.11 Configuration

This option shows you the current configuration of the selected instrument and enables you to change it. When you click the Configuration option in the left menu, you will be asked to select an instrument as discussed in section 4.1.1. Then you will be displayed the configuration of the selected instrument as shown in figure 4.42 (a) and 4.42 (b).

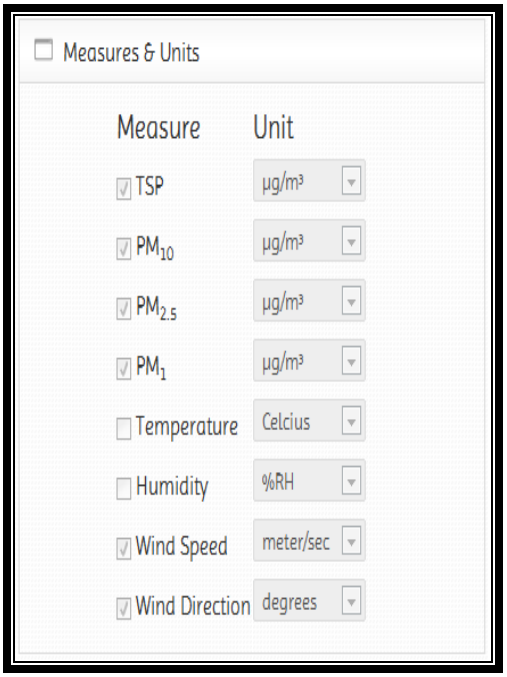


Figure 4.42 (a)

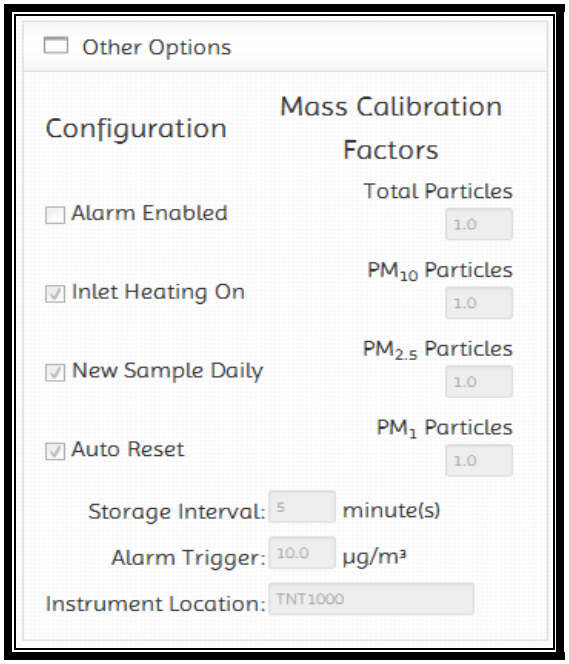


Figure 4.42(b)

The configuration page contains two tabs named as **Measure & Units** and **Other Options**. If the instrument is sampling, you are not allowed to change the configuration so you will have to stop sampling first. The application shows a message on top of the page and a *Stop Sampling* button to stop the instrument for sampling at the bottom right of the page. When you stop the instrument you will be allowed to change the configuration of the instrument. The figures above show the options to select the channels and their units and other configurations of the instrument that can be changed. When you are done changing the configuration, click the *Apply* button to update the configuration on the instrument. The application shows a confirmation message after it finishes the update operation as shown in the figure below.

Successfully updated Date and Time...
Successfully updated flags...
Successfully updated the location...
Successfully updated the Storage Interval...
Successfully updated the Alarm trigger and Mass calibration factors...
Successfully Loaded new Settings...

Figure 4.43

4.12 Live Video

This option allows you to see the live video from the instrument if the IP camera is attached to the instrument's web server. When you click 'Live Video' option in the left menu, you are asked to select the instrument you want the video for. Select the instrument as discussed in section 4.1.1, then you will see the live video from the IP camera connected to the instrument as shown in figure 4.44.

Figure 4.44

4.13 Notifications

When you click the 'Notifications' option in the left menu, the latest notifications will be displayed in the table charts as show in the figures below.

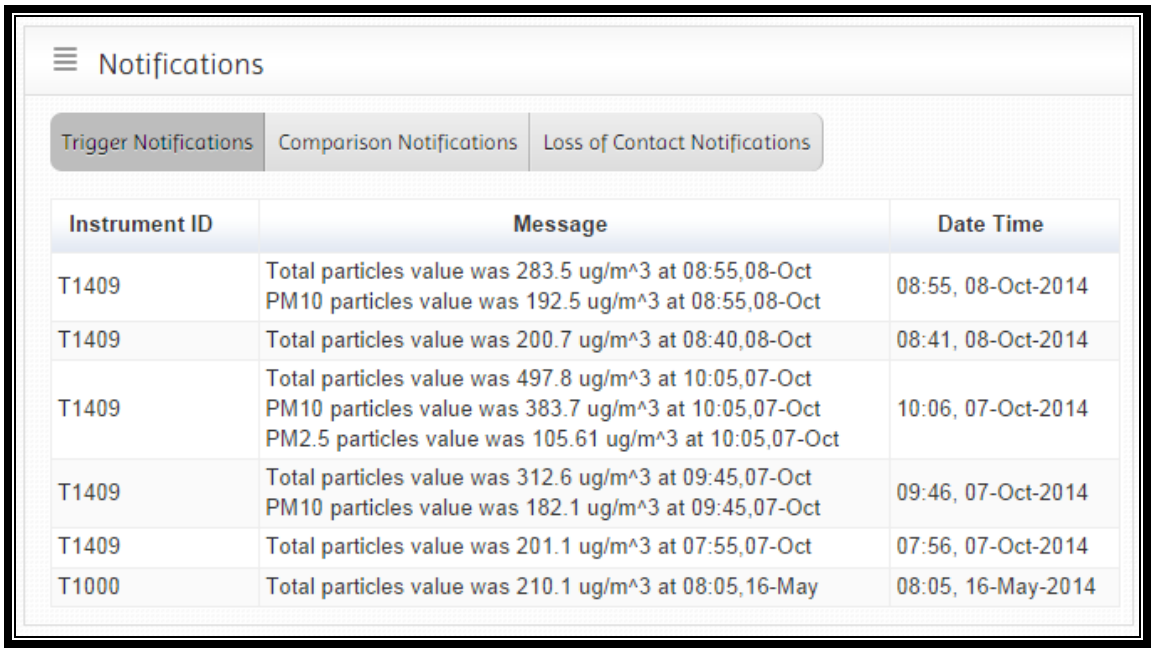


Figure 4.45

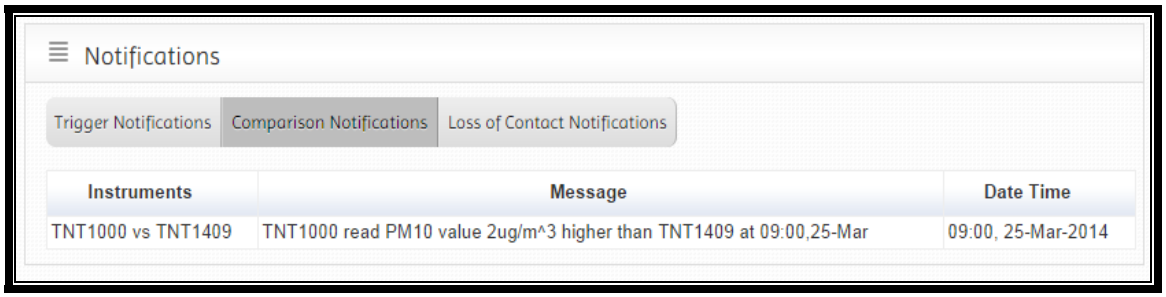


Figure 4.46

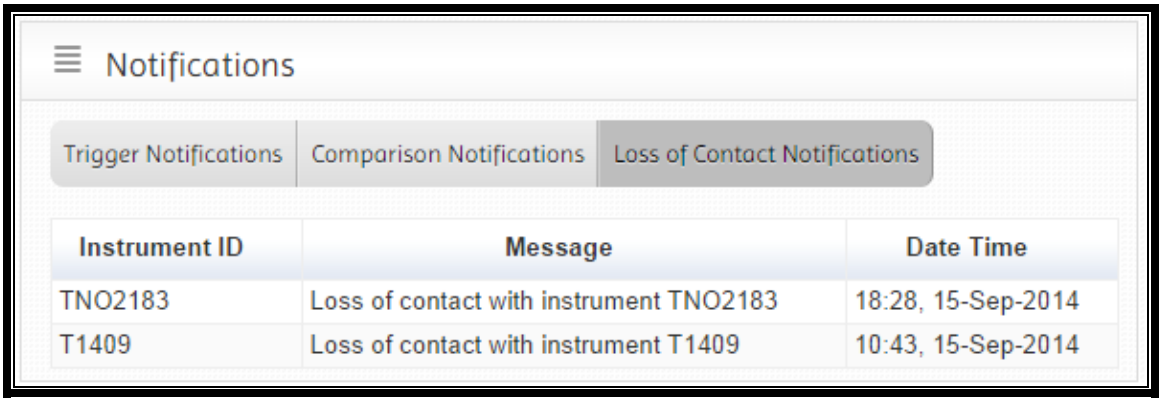


Figure 4.47

Trigger notifications tab shows the latest exceedence notification from all the instruments registered on your account. Similarly comparison and loss of contact notification show notifications from all the registered instruments sorted by date time in descending order.

4.14 Update Profile

Update Account option allows you to change your account details such as name, address, contact details etc. When you click the option as shown in figure 4.48

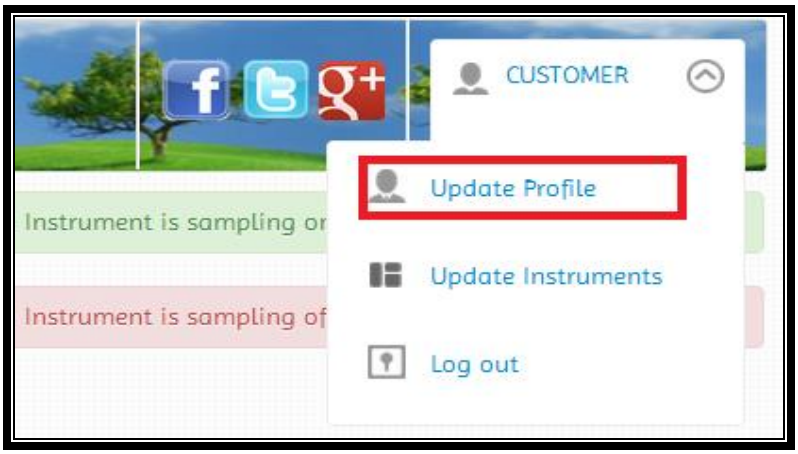


Figure 4.48

The application shows you the update account page where you can change the details as shown in figure 4.49.

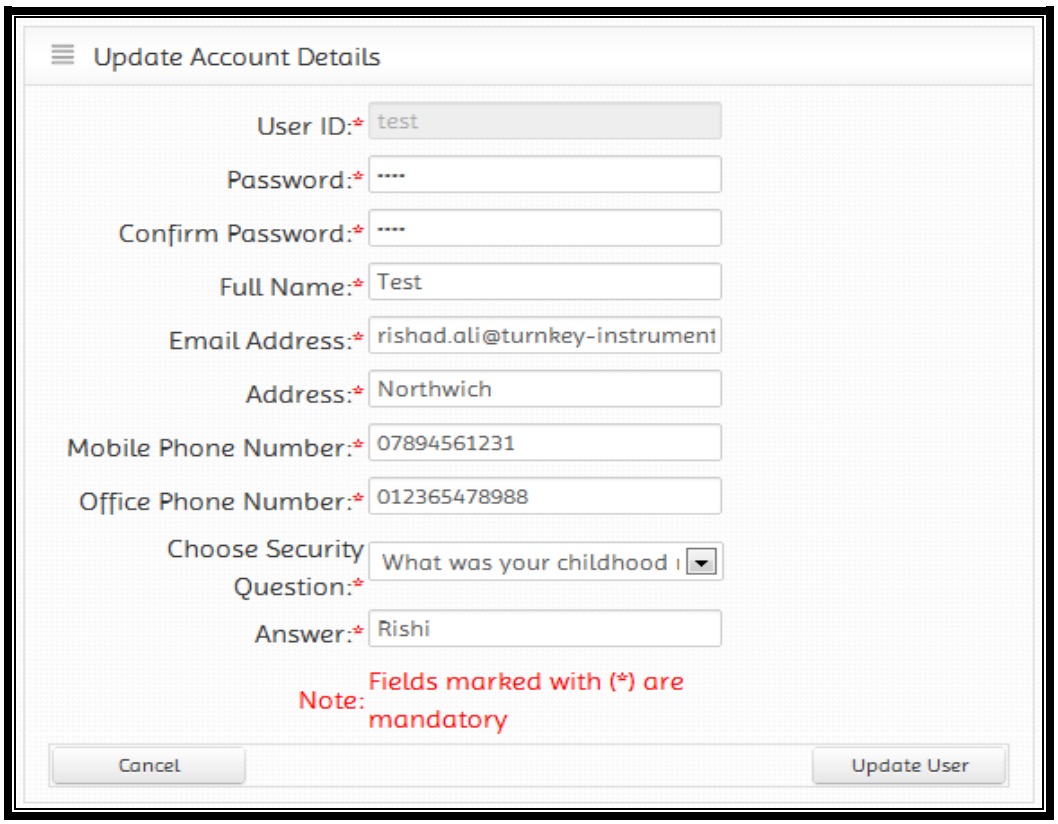


Figure 4.49

You can change all your account details listed above using this option. We recommend you to change your password and security question/answer when you log in first time.

4.15 Update Instruments

You can update the details of your instruments using this option such as IP address, port, location, GPS coordinates, etc. Click the Update Instrument link as shown in figure 4.50

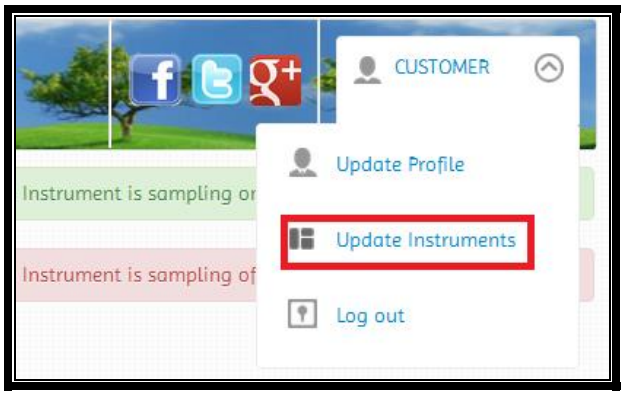


Figure 4.50

This will show you the instrument list to select an instrument as discussed in section 4.1.1. After you have selected an instrument, the application shows you the details of that instrument and allows you to change them as shown in the figure 4.51

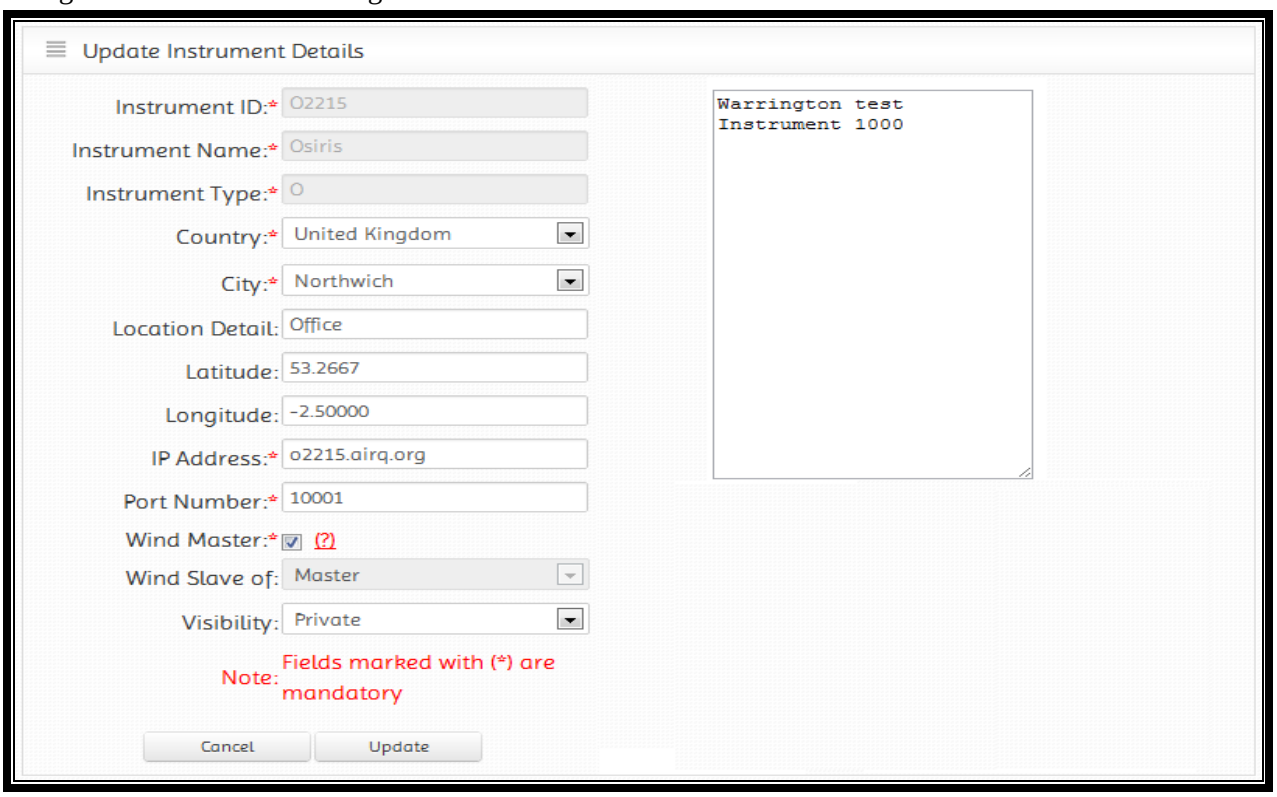


Figure 4.51

If the instrument has its own anemometer to measure wind speed and direction then you must check *Wind Master* check box otherwise you can get the wind data from another instrument using the *Wind Slave of* option. You can keep some notes in the memo box on the right hand side.

4.16 Data Sharing

AirQWeb allows you to share your data with other AirQWeb users. You can share your instruments with multiple users. When you share your instruments with others, they cannot control your instruments neither they can make any changes to your data. They can visualise the data from shared instruments, generated reports and compare data. They can also setup Email & SMS alerts on the shared data but these alerts are independent from main alert configurations. Click Data Sharing option to control data sharing as shown in figure 4.52

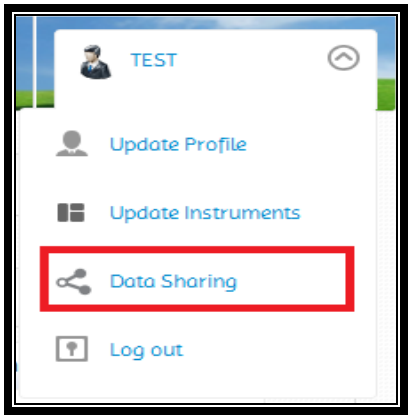


Figure 4.52

This will show you the data sharing page where you can manage your shared instruments, accept or reject others request to share data or request others to share their data as shown in figure 4.53

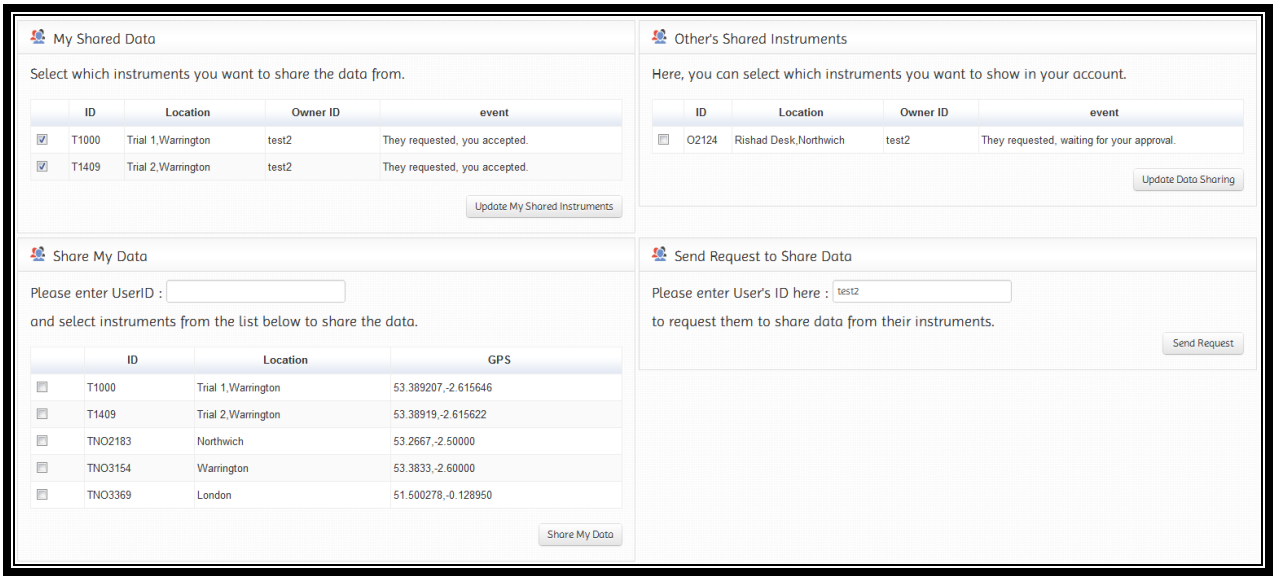

My Shared Data
Select which instruments you want to share the data from.
ID Location Owner ID event
T1000 Trial 1,Warrington test2 They requested, you accepted.
T1409 Trial 2,Warrington test2 They requested, you accepted.
Update My Shared Instruments
Other's Shared Instruments
Here, you can select which instruments you want to show in your account.
ID Location Owner ID event
O2124 Rishad Desk,Northwich test2 They requested, waiting for your approval.
Update Data Sharing
Share My Data
Please enter UserID :
and select instruments from the list below to share the data.
ID Location GPS
T1000 Trial 1,Warrington 53.389207,-2.615646
T1409 Trial 2,Warrington 53.38919,-2.615622
TNO2183 Northwich 53.2667,-2.50000
TNO3154 Warrington 53.3833,-2.60000
TNO3369 London 51.500278,-0.128950
Share My Data
Send Request to Share Data
Please enter User's ID here : test2
to request them to share data from their instruments.
Send Request

Figure 4.53

My Shared Data: Here you can control which instrument(s) you want to share with others.

Other's Shared Instruments: Here you can select which instruments of others you want to show in your account.

Share My Data: Here you can send request to other users to share your instruments with them.

Send Request: Here you can send request to other user to share their data with you.

4.17 Special Instructions for Error Correction

When you are using the Visualize Data option you can see a message saying,
"Sorry, there is no data available. Please select the date(s) again".
Please select different dates and search again.
When you are communicating with the instrument to start/stop sampling or Upload data or configuration you may see a message like,
"Could not establish the connection with the instrument".
Please try again. If you see this message again and again, you will have to check the instrument's IP address and port and the internet connection. This may occur if the port that instrument uses is blocked or if the instrument is talking to other application like AirQ (Desktop application). Please contact support in case of technical problem.
Loss of Contact: On the main panel, you may see a notification saying,
"AirQWeb lost contact with **instrument#** at date and time".
This notification can be temporary if the instrument is talking to another application such as "AirQ desktop". AirQWeb keeps on trying to re-establish the connection. If the connection is not re-established within one hour AirQWeb will generate a loss of contact alert (if enabled in "Email & SMS Alerts" options). AirQWeb automatically uploads the data from the instrument's memory when the connection is re-established. If you see long gaps in the data you can manually upload the data using the "Upload Data" option from the left menu (the long gaps occur when the instrument is not sampling, probably due to power issues).

4.18 Caveats and Exceptions

If the application crashes or does not display the data please contact support.